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PIPS III

USER GUIDE

INTRODUCTION

WHAT IS PIPS III?

PIPS III (Pan Information Processing System) is a very powerful, highly versatile spread sheet system. It provides you with all the functions you need to create, manipulate, print and store data in a way which will fit your particular needs.

APPLICATION ORIENTED

PIPS III is designed to be used by anyone who works with data, either at work or at home. No knowledge of computers or programming is needed to use PIPS III. All of the programming has been done; all you do is provide the data and tell PIPS what to do with it.

USER FRIENDLY

Data format creation, entry and manipulation are all accomplished through a dialogue with PIPS. When you tell PIPS what to do, PIPS will ask for more specific details about how the operation you have requested is to be carried out. You supply the data and instructions; PIPS does the work.

PIPS IS A TOOL

Like any tool, the more you use PIPS, the more skillful you'll become with it. PIPS will not only take the drudgery out of your work, but also expand your personal and business horizons.

PIPS OPERATIONS

THE BASICS

The basis for nearly all PIPS OPERATIONS is the PIPS PAGE and a data TABLE on that PAGE.

COMMANDS

Data in the TABLE on a PIPS PAGE are manipulated by executing COMMANDS. By executing a COMMAND you are simply telling PIPS what you want to do. Each COMMAND performs a particular job.

Execution of a COMMAND consists of two phases. First, you tell PIPS generally what you want to do by entering the COMMAND. After you have entered the COMMAND, PIPS will ask for more instructions about how the COMMAND is to be executed. These requests from PIPS for more specific instructions are called PROMPTS.

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PROMPTS AND SPECIFICATIONS

Your responses to PROMPTS are called SPECIFICATIONS. Depending on the complexity of the COMMAND , PIPS may ask for only a few or for several SPECIFICATIONS. After you have provided the details PIPS requires, the operation is carried out.

THE PIPS PAGE

Bascially, there are two types of PIPS PAGES: FORMATTED and NON-FORMATTED PAGES.

When data is entered on the PIPS PAGE in TABLE form, the PAGE is FORMATTED. When the PAGE contains data in other than a TABLE configuration, it is NON-FORMATTED. Graphs, written text entries, and user-designed forms are all done on NON-FORMATTED PIPS PAGES.

THE NON-FORMATTED PAGE

We'll explain the NON-FORMATTED PAGE in a separate section of the guide. Our present discussion will be limited to the FORMATTED PAGE because this is the PAGE you'll be using most throughout this guide to PIPS operations.

THE FORMATTED PAGE

The basic unit for manipulating, storing and retrieving data in the PIPS system is the FORMATTED PAGE. The maximum size of the PAGE is 150 characters wide and 60 lines long. The minimum PAGE size is 75 characters wide and 20 lines long. You are not, however, restricted by PAGE size because PIPS allows you to manipulate data which extends over several PAGES as though it were one PAGE.

You can set the size of the PAGE within the above limitations to meet your needs and make the most economical use of the storage capacity of your system. We'll show you how to adjust PAGE size later in this manual.

THE TABLE

There is no fixed FORMAT for data entries on PIPS PAGES; PIPS lets you design your own FORMATS to fit your particular needs and to modify the FORMAT as the need arises.

A TABLE consists of LINES and COLUMNS. By specifying a LINE and COLUMN, you can pinpoint a particular data item in a TABLE. These SPECIFICATIONS are much like map coordinates. When trying to find a city on a road map, the index may specify "B,5" as the location of the city on the map. The map will be divided into grids, with the alphabet indicating vertical columns of grid squares and numbers indicating horizontal columns. "B,5" would be the grid location where "B" and "5" intersect.

In a similar way, PIPS SPECIFICATIONS are always made with the LINE number given first, and the COLUMN number second. For example, "5,3" would pinpoint the data item located on LINE "5" in COLUMN "3"in a TABLE.

There will be ample opportunity to become familiar with this and many other concepts as you go through the practical examples in this manual.

WHERE OPERATIONS TAKE PLACE

There are two storage areas for data in your computer system: WORKING STORAGE and EXTERNAL STORAGE. Before we continue, you should understand the important differences between these two areas.

WORKING STORAGE

WORKING STORAGE is an area in the CENTRAL PROCESSING UNIT (CPU) of your computer system where the actual manipulation of data takes place. WORKING STORAGE is a TEMPORARY storage area. This means that any data in WORKING STORAGE will be lost when you turn OFF the power to your computer, or for any reason, the flow of power to your computer is interrupted. However, your system has ample provisions for the PERMANENT storage of data in EXTERNAL STORAGE.

EXTERNAL STORAGE

EXTERNAL STORAGE is an area outside the COMPUTER in which you can make a permanent record of your data. These EXTERNAL STORAGE facilities are provided by your DISK DRIVE UNIT, which copies data in WORKING STORAGE in the CPU onto a diskette in the DISK DRIVE UNIT. When these copying operations are properly carried out, you can make a permanent record in EXTERNAL STORAGE of data in WORKING STORAGE, and that record will remain even if power is interrupted or when you turn your system OFF.

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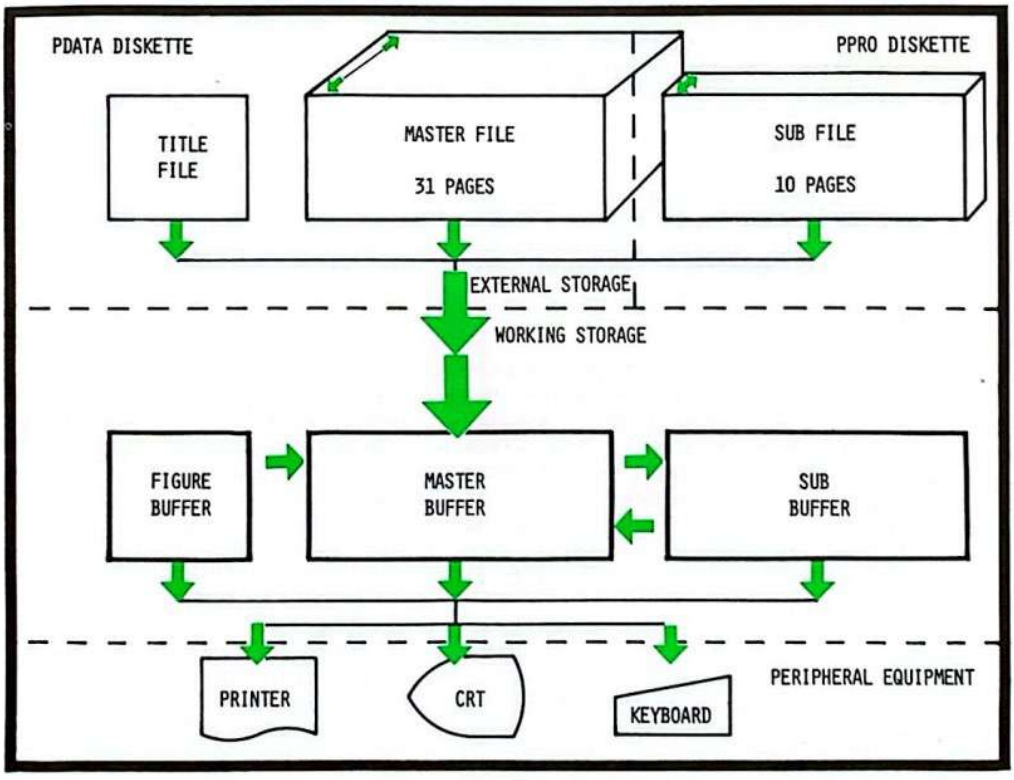
SPECIFIC AREAS IN WORKING STORAGE

There are three areas in WORKING STORAGE you should become familiar with: the MASTER BUFFER, the SUB BUFFER, and the FIGURE BUFFER. Don't concern yourself about the word, "BUFFER". It is one of the few special terms used in PIPS, and it simply means a special area in WORKING STORAGE. How these BUFFERS interact with other elements of the PIPS system will be gradually explained in this guide. At this point, it is sufficient for you to be aware of their existence.



THE MASTER BUFFER

The MASTER BUFFER is the area in WORKING STORAGE you will be using most in PIPS operations. The MASTER BUFFER is 150 characters wide and 60 lines long. Normally what you see displayed on your screen is the MASTER BUFFER, though you can also view any of the other BUFFERS whenever you wish.

THE SUB BUFFER

The SUB BUFFER is similar to the MASTER BUFFER in many respects. It is located in WORKING STORAGE, and is exactly the same size as the MASTER BUFFER. It can be used to temporarily store the contents of the MASTER BUFFER so that some other operation can be performed in the MASTER BUFFER without losing the previous MASTER BUFFER contents. The SUB BUFFER is also used to store the results of many PIPS operations, such as making graphs. Like the MASTER BUFFER, the SUB BUFFER can be displayed on your screen.

THE FIGURE BUFFER

The FIGURE BUFFER is used to store the results of calculations for later calculations or references. The FIGURE BUFFER will be fully explained in the section on CALCULATION later in the guide. The FIGURE BUFFER can also be displayed on your screen.

SPECIFIC AREAS IN EXTERNAL STORAGE

There are three files, i.e., permanent storage areas in EXTERNAL STORAGE: the MASTER FILE, the SUB FILE, and the TITLE FILE. As with the BUFFERS, the use and interaction of these FILES will be explained in detail as we progress.

THE MASTER FILE

The MASTER FILE is located on the PDATA diskette, which is located in Drive #1 of your DISK DRIVE UNIT. When you are using PAGES of maximum size (150 characters x 60 lines), the MASTER FILE contains 31 pages. If you set the PDATA diskette PAGE size to less than the maximum, the number of available PAGES will increase proportionally. You file a page permanently in the MASTER FILE by copying the PAGE in the MASTER BUFFER onto the PDATA diskette.

Because you can change the PDATA diskette as often as you like, when it is full, or when using PIPS for different applications, your permanent file size is limited only by the number of diskettes you choose to have on hand.

A PDATA diskette can be copied, and it is always a good practice to have a BACKUP copy of your data in case something happens to the original. Furthermore, by copying the PDATA diskette, the data it contains can become available to more than one person at a time. For instance, the same DATA BASE could be made available to several sections in an organization, and used for each section's specific requirements.

THE SUB FILE

The SUB FILE is located on the PPRO diskette which is inserted in Drive #0 on your DISK DRIVE UNIT. The PPRO diskette contains the PIPS system and the SUB FILE. The SUB FILE has the storage capacity of 10 PAGES, and unlike MASTER FILE PAGES, SUB FILE PAGES are always maximum size.

The SUB FILE is a SEMI-PERMANENT storage area. There are several reasons for making this distinction. Since the PPRO diskette cannot be copied, the SUB FILE is always in the user's DISK DRIVE UNIT. SUB FILES are not protected, so they are easily written over (erased) accidentally. The SUB FILE cannot be used for storing automatic programs. In PIPS SORT operations, depending on the number of PAGES to be SORTED, some SUB FILE PAGES may be used for the SORT operation, erasing whatever may have been on them before the SORT.

Because the SUB FILE is always 150 characters across and 60 lines down, smaller pages on the PDATA diskette may be combined in the SUB FILE and printed or manipulated. Because the SUB FILE PAGES are always set at the maximum size, even when you have your PAGE size set smaller to give you more PAGES on the PDATA diskette, you still have at your disposal 10 PAGES set at maximum size in the SUB FILE.

THE TITLE FILE

The TITLE FILE contains the titles and other identifying data of PAGES contained in the MASTER FILE and SUB FILE, and the titles of recorded AUTOMATIC PROGRAMS. With a simple COMMAND, you can see the TITLE FILE anytime during PIPS operations without disturbing the contents of the MASTER BUFFER.

INTRODUCTION

HOW TO USE THIS MANUAL

Throughout this manual, the PIPS SYSTEM is introduced by COMMAND. First, we'll show you how to make TABLES and enter data in them, then we'll explain how to manipulate and update your TABLES using more complex COMMANDS and operations.

ORDER OF PRESENTATION

If possible, you should try to do the PIPS operations on your machine as you go through the manual. However, if this is not practical, the manual is written in a manner which allows you simply to follow the examples presented. Many of the TABLES used as examples will already be on the PDATA disk which comes with the PIPS package. Use these tables to practice with PIPS. No matter how you choose to use this manual, remember that there is no substitute for "hands on" experience in learning.

We've provided an alphabetical index across the bottom of facing pages, so you can quickly find any COMMAND in the manual after glancing at the bottom of the page and going to the appropriate page number. The alphabetical index will become more useful to you as you go along. When more complex operations are introduced, you may need to refresh your memory about previously introduced COMMANDS and procedures.

Experiment with PIPS as you go along. The more you use it, the more effectively you can put PIPS to work for you.

BEFORE YOU BEGIN

Be sure to refer to your computer, disk drive, CRT, and printer manuals for details about hook-up procedures. INCORRECT CONNECTIONS OR START UP PROCEDURES CAN CAUSE SERIOUS DAMAGE TO YOUR EQUIPMENT AND THE PIPS SOFTWARE SYSTEM.

Additional information will appear throughout the manual under the headings "NOTE:" or "CAUTION". NOTEs are provided to give you important tips which are essential to your understanding of the most efficient way to use the PIPS III SYSTEM.

CAUTIONs will appear less frequently. However, disregarding the information included under this heading could seriously damage your equipment or the data on your data diskettes.

PIPS is designed to work for you, not the other way around. Master PIPS. You'll be glad you did.

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I. GETTING STARTED

GETTING STARTED

Turning on the equipment is very simple, but there is one important point to keep in mind: YOU MUST TURN ON YOUR EQUIPMENT IN THE PRESCRIBED ORDER TO AVOID DAMAGING THE EQUIPMENT OR DISKETTES.

After all the proper connections have been made, turn ON the equipment, taking care to follow the order described below:

1st: CPU

2nd: CRT

3rd: DISK DRIVE UNIT

4th: PRINTER

"SET DISKETTE AND STRIKE ANY KEY " will be displayed at the bottom left corner of your screen.

1.1 INSERTING THE DISKETTES

In PIPS operations, you'll be using two types of diskettes: a PPRO (Program) Diskette, and a PDATA (Data) Diskette. The PPRO Diskette is ALWAYS inserted into Drive 0 of the DISK DRIVE UNIT; the PDATA Diskette goes into Drive 1

1.1.1 Look at the front panel of the DISK DRIVE UNIT. Reading from left to right, you'll see two slots marked "0" and "1".

1.1.2 Pick up your PPRO Diskette, the one marked "Program".

1.1.3 Hold the PPRO Diskette parallel to the entrance to Drive #0. The leading edge of the diskette, as it is inserted, has two small notches, the top edge a single, much larger notch.

1.1.4 Gently insert the PPRO Diskette into Drive #0 of the DISK DRIVE UNIT. When the diskette is inserted fully, snap shut the door on Drive #0 with firm pressure on the door, pressing from right to left.

ACM--143	BF ---- 105	CA-D---58	CF --- 55	CT ------- 41	DL---- 49	END --- 4
AS ---267	BS ----74	CA-U--214	CM--275	CTRL ----237	DRL---64	F----- 97
AU#--270	BT---- 21	CAL---- 97	COL--87	D ------- 97	ED---223	FO---110
B---- 33	CA-A--209	CC-----42	CS---185	DC------ 53	EF---226	FT----248

1.1.5 Insert the PDATA Diskette in Drive 1. Be sure the doors on Drive #0 and Drive #1 are completely closed.

1.1.6 Press any key on the KEYBOARD.

The CRT will display "M20/M23 Mark-III DISKETTE GDOS REV. 33C" at the lower part of the screen. The number following "REV" many not be the same as shown here. This is the revision number, and as PIPS is constantly being improved and updated, the number may be different.

1.2 DATE ENTRY

"DATE DD-MM-YY" will be displayed on the screen. Input the date.

For example, if the date is October 18, 1982, enter "8-10-82", following the order described: DDay, MMonth, YYear, each separated by a hyphen.

NOTE: IT IS NOT NECESSARY TO ENTER TWO DIGITS TO "MM" AND "DD", i.e., "08".

1.2.1 Enter the correct date and press "RETURN.

1.2.2 If an invalid date is entered (more than 31 for the day, more than 12 for the month, etc.), the prompt will be displayed again. Only valid date entries will be accepted.

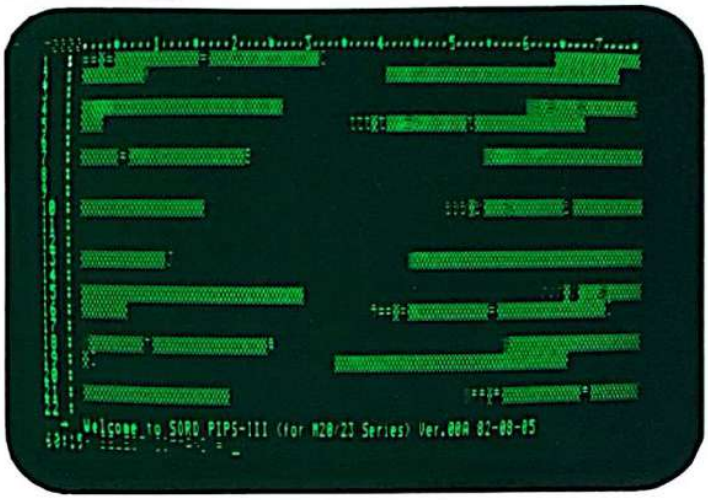
1.2.3 If you should make a mistake in the DATE ENTRY before you press "RETURN", you can use the "DEL" (delete) key to back up the CURSOR to the position where you made the error and make a new entry. The "DEL" key is located right above the "RETURN"key. The CURSOR erases entries as it is backed up with the DEL key. The CURSOR will back up one position every time the "DEL" key is pressed.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

END

If you want to cancel the entire entry before pressing RETURN, press the Cancel Key, marked "C", on the numeric pad on the right side of the keyboard.

NOTE: THE "DEL" (Delete) AND "C" (Cancel) KEYS CAN BE USED AT ANY STAGE IN PIPS OPERATIONS, WHETHER ENTERING COMMANDS, RESPONDING TO PROMPTS OR ENTERING DATA INTO TABLES.



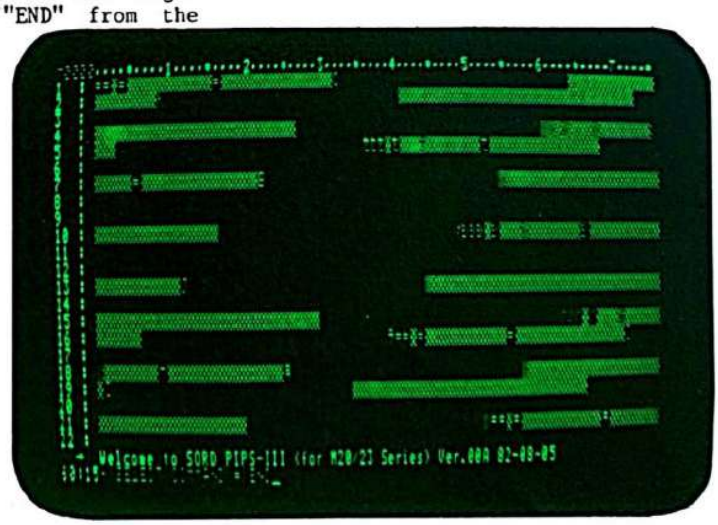
After making the DATE ENTRY and pressing "RETURN", a PIPS PAGE containing bars of various length will be displayed.

1.3 SHUTTING DOWN THE SYSTEM

When terminating PIPS operations to turn OFF the equipment or to run a different program on your computer system, you must execute the END Command.

To familiarize you with the END Command, let's shut down the system now.

1.3.1 The CURSOR will be blinking just to the right of * SELECT COMMAND =". Enter "END" from the KEYBOARD and press "RETURN".



The red operating indicator lamps on the disk drive unit will go on and off a few times. PIPS is tidying up the diskettes and getting the system ready for use the next time you need it.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

1.3.2 When the screen clears and "READY" appears at the upper right of your screen display, look at your DISK DRIVE UNIT and be certain that the red operating indicators are off.

CAUTION: NEVER TURN THE POWER OFF OR REMOVE THE PIPS DISKETTES FROM THE DISK DRIVE UNIT WHILE THE RED INDICATOR LAMPS ARE LIT. THIS WILL DESTROY THE FILES ON THE DISKETTES.

1.3.3 After the indicator lights go out, you may remove the PPRO and PDATA Diskettes.

1.3.4 You can now turn off the system, but your equipment must be turned OFF in the following order:

1st: PRINTER

2nd: DISK DRIVE UNIT

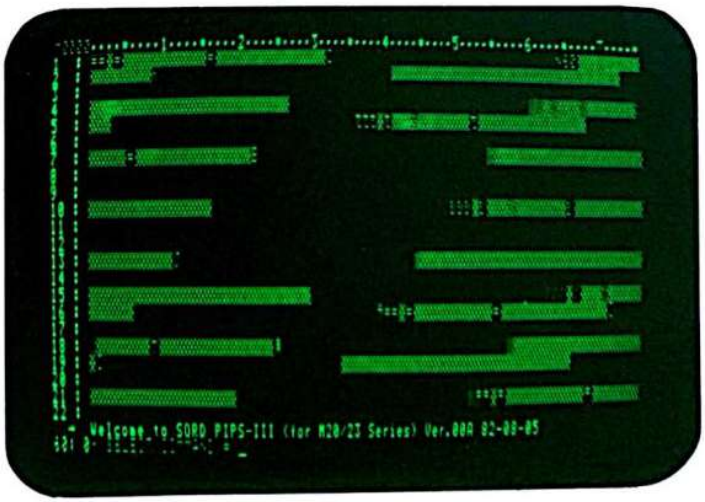
3rd: CRT

4th: KEYBOARD

1.4 RETURNING TO PIPS OPERATIONS

1.4.1 Although we have just described how to turn OFF your equipment, you may want to end PIPS operations, and run another type of software package on your computer. In this case, it is not necessary to turn OFF the computer. Simply load the software in the prescribed manner when READY is displayed. When you have finished with that system, and you want to run PIPS again, you do not have to go through the entire start up procedure.

1.4.2 When "READY" is displayed, all you have to do to resume PIPS operations is press the F1 key at the top of your KEYBOARD. In a few seconds, a PIPS page will be displayed on the screen, and you can resume PIPS operations.



F1 RETURN

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

II. MAKING THE TABLE

ORIGINAL FILE
MAKE TABLE

G ---- 26 | IC-Y --- 46 | L ------ 91 | ML --- 54 | P ---------- 23 | RF --- 56 | SORT- - -157 | TRS - - -73
GF - - 247 | IL ---- 77 | LF ---- 232 | MT --- 15 | PBACK ---- 284 | SB ---- 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF ------- 245 | SET - - 89 | TD - - - 285 | W - - - - 37
IC-N - - 80 | IR ---- 44 | MAW - - 147 | O ---- 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

2.1 THE O COMMAND (Original File)

In this section we'll make a TABLE in the MASTER BUFFER and then enter data into that TABLE.

Use the O Command when you want to create a new TABLE FORMAT in the MASTER BUFFER. With the specifications to the prompts in the O Command you can determine the following:

a. Title of the TABLE

b. Number of columns in the TABLE

c. The width of each column

d. Comments about the table

e. Titles for each column

f. The number of lines at the top of the table reserved for column titles

Before we begin execution of this command, we'll first sketch the chart and determine what it is to contain, and in what form.

Col 1 Col 2 Col 3 Col 4 Col 5 Col 6

Title: Distribution of Sales by Department and Month

Department / Month	Women's Coats	W. Dresses ~~Women's Dresses~~	Women's Suits	Men's Coats	Men's Suits
Jan	4580	3200	3560	1860	3250
Feb	3500	3700	2300	1940	2670
Mar	2420	4310	1941	800	2800

Month/Dept = 10 spaces + 2 spaces = 12 spaces

W. Dresses = 10 spaces + 2 = 12 spaces

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

O ORIGINAL FILE

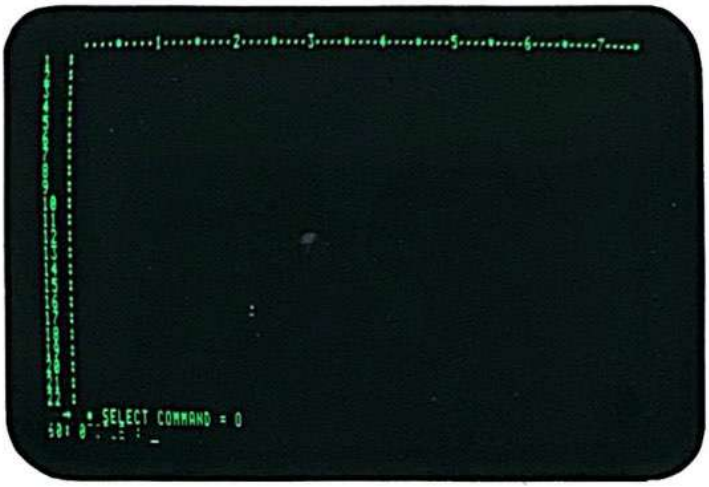
With our rough sketch, we've already determined the titles for each column, the number of columns, and the width of each column.

NOTE: CONSIDER TWO THINGS WHEN DETERMINING COLUMN WIDTH: THE LENGTH OF THE COLUMN TITLE, AND THE LENGTH OF THE LONGEST DATA ENTRY WHICH WILL BE IN THAT COLUMN.

2.1.1 In response to the

```
* SELECT COMMAND =
```

prompt, enter "O", and press "RETURN". PIPS will ask you for a series of specifications. Your responses to these prompts determine the FORMAT of the new TABLE.



The CURSOR will be blinking to the right of the colon:

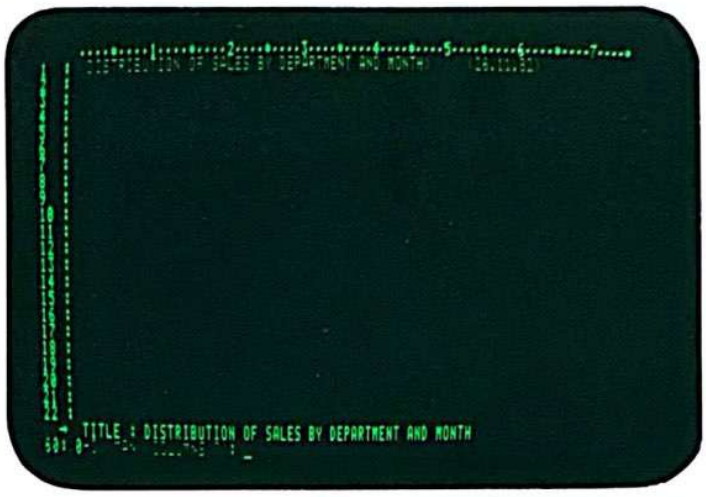
```
TITLE : _
```

PIPS is asking you to input the title of the TABLE.

2.1.2 Enter the title of the TABLE and press "RETURN".

NOTE: THE LENGTH OF THE TITLE CAN BE 50 CHARACTERS OR LESS. UPON ATTEMPTED INPUT OF THE 51ST CHARACTER, THE NEXT PROMPT WILL BE DISPLAYED, AND THE FIRST 50 CHARACTERS OF THE TITLE WILL APPEAR AT LINE 1 OF THE TABLE.

IF THE TITLE IS UNSATISFACTORY AS IT IS, PRESS "ESC". PIPS WILL RETURN TO THE COMMAND MODE, AND YOU MAY THEN EXECUTE THE "O" COMMAND TO CREATE A NEW TABLE FORMAT.

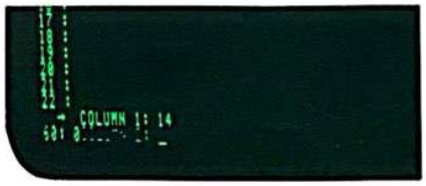


2.1.3 When "RETURN is pressed, the title of the TABLE will be displayed in Line 1 of the TABLE and PIPS will ask for the number of columns the TABLE is to have.

In our example we have six columns, one for the months and one each for five departments. Enter "6" and press "RETURN".

NOTE: PIPS ALLOWS A MAXIMUM OF 72 COLUMNS IN A TABLE.

2.1.4 We'll now specify the width of the first column. Each column should be at least as long as the longest entry the column will have or the length of the column title, whichever is greater. To distinguish each column from the other more easily, add two or three spaces to the figure arrived upon. We'll specify "14" to this prompt.

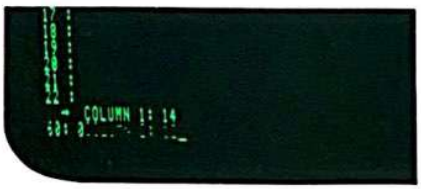


NOTE: THE NUMBER OF CHARACTERS IN EACH COLUMN MAY NOT EXCEED 74.

2.1.5 PIPS is now asking for the width of Column 2. For our example, 12 spaces will be enough for the data we want to enter in each of the five department columns.

Enter "12" to this and the next four prompts, pressing "RETURN" after each entry.

PIPS will continue to ask for column width specifications up to and including the number entered in response to "HOW MANY COLUMNS ? :" in Step 2.1.3 above.



2.1.6 After entering the column width for the last column (Column 6), PIPS will ask for COMMENTS.

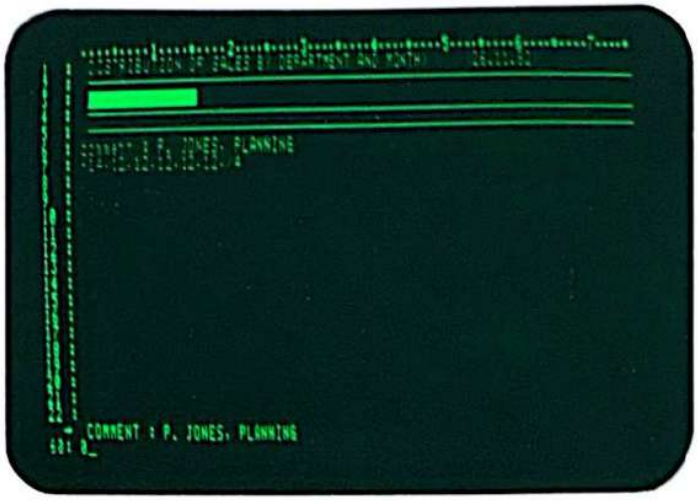
Here you can enter additional information to identify your TABLE: Who made it, for whom it is being made, or to clarify entries.

G---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF ------- 245	SET---89	TD---285	W---37
IC-N--80	IR ----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

We'll assume that the TABLE is being prepared by Paul Jones of the Planning Department and that he wants to annotate the TABLE to that effect.

Enter "P. JONES, PLANNING" and press "RETURN".

NOTE: COMMENTS ENTERED HERE MAY BE UP TO 75 CHARACTERS LONG. IF NO COMMENT IS REQUIRED, PRESS "RETURN". PIPS WILL GO ON TO THE NEXT PROMPT.



2.1.7 After you press "RETURN", a lighted bar, called a reverse field bar, will appear at the beginning of Line 3. PIPS is now asking for the title of Column 1.

NOTE: COLUMN TITLES MAY BE ONLY AS LONG AS THE COLUMN IS WIDE. THE REVERSE FIELD BAR SHOWS THE WIDTH OF THE COLUMN.

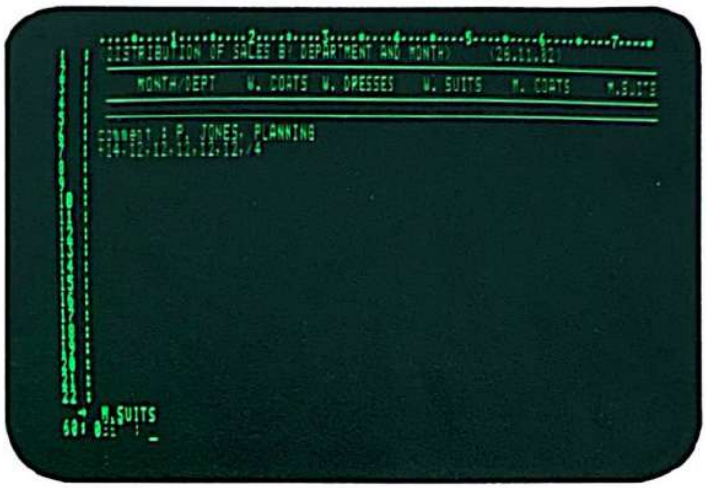
Enter the title for the first column and press "RETURN".

The title of the first column will move to the right of the first column. The reverse field bar will appear across the length of Column 2.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU✱--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

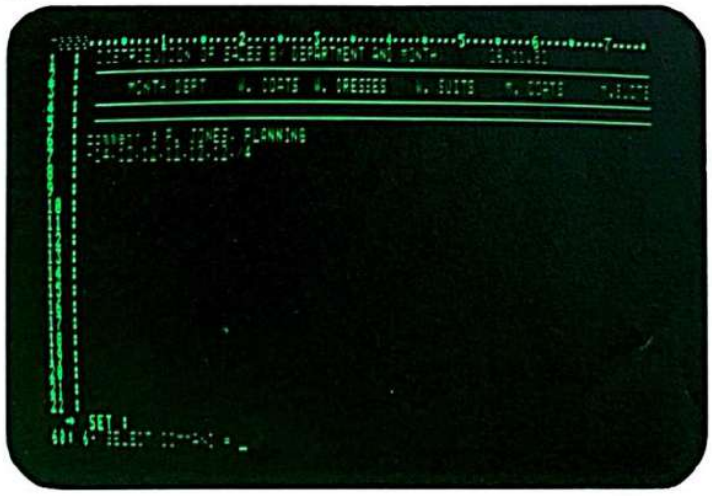
Enter the title of the second column and press "RETURN". The reverse field bar will automatically advance to Column 3. We'll title all of the columns.

2.1.8 After entering the title of the last column and pressing "RETURN", PIPS will ask, "SET :". Press "RETURN".



If no entry is made here, PIPS will automatically treat the first four lines of the TABLE as title lines, i.e., calculations will not be done on the first four lines. If more lines are needed for column titles, enter the number of lines to be reserve for titles.

After you PRESS "RETURN", PIPS returns to the COMMAND MODE. "COMMAND MODE" means that PIPS is waiting for the next command.



G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT- - - 157	TRS- - - 73
GF - - 247	IL - - - - 77	LF - - - - 232	MT - - - 15	PBACK - - - - 284	SB - - - - 76	ST - - - 170	UPD- - 195
GR - - 119	IN - - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET - - - 89	TD - - - 285	W - - - 37
IC-N - - 80	IR - - - - 44	MAW - - 147	O - - - - 9	PROTECT - - - 276	SFN - - 203	TRM - - - 75	

2.2 THE CTRL, LEFT ARROW FUNCTION

The scale across the top of the CRT display normally is simply a scale indicating the number of characters horizontally on the screen.

....*....1....*....2....*....3...

The first "*" marks the fifth character position, the first "1", the 10th position, the second "*", the 15th, etc.

2.2.1 This scale can be made to indicate column numbers by holding down the "CTRL" key on the left of the keyboard, and pressing the left direction key once.

1 2 3 ...

2.2.2 If the left direction key is pressed a second time while depressing the "CTRL" key, the widths of each column will be displayed.

12 12 12

2.2.3 To return to the original scale, press the left direction key once more while holding down the "CTRL" key.

....*....1....*....2....*.....3...

These functions will become increasingly useful as we continue to work with this and other TABLES.

PROMPTS O

```
* SELECT COMMAND =
  TITLE :
  HOW MANY COLUMNS ? :
  COLUMN 1 :
  COLUMN 2 :
` COLUMN 3 :
  ..........
  COMMENT :
  SET :
* SELECT COMMAND =
```

MAKE TABLE M T

3.1 THE MT COMMAND (Make Table)

Use the MT Command to make data entries in TABLE FORMATS. To explain the execution of this command, we'll enter data into the TABLE FORMAT we just created in the previous section.

3.1.1

With this TABLE FORMAT in the MASTER BUFFER, enter "MT" and press "RETURN".

A reverse field bar is displayed at Line 5 (the first data line in the TABLE), Column 1. PIPS is waiting for data to be entered in this location.

3.1.2

Enter "JANUARY" and press "RETURN". After pressing return, "JANUARY" is displayed at the right of the first column, and the reverse field bar appears on the same line in Column 2.

NOTE: PIPS INITIALLY JUSTIFIES ALL DATA ENTRIES TO THE RIGHT OF THE COLUMN. THIS IS FINE FOR NUMBERS, BUT FOR TEXT ENTRIES, IT LOOKS A BIT ODD. WE WILL MAKE THIS ADJUSTMENT SHORTLY WITH THE "RF" COMMAND. FOR NOW, WE'LL LEAVE IT AS IT IS.

G - - - - 26 | IC-Y - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

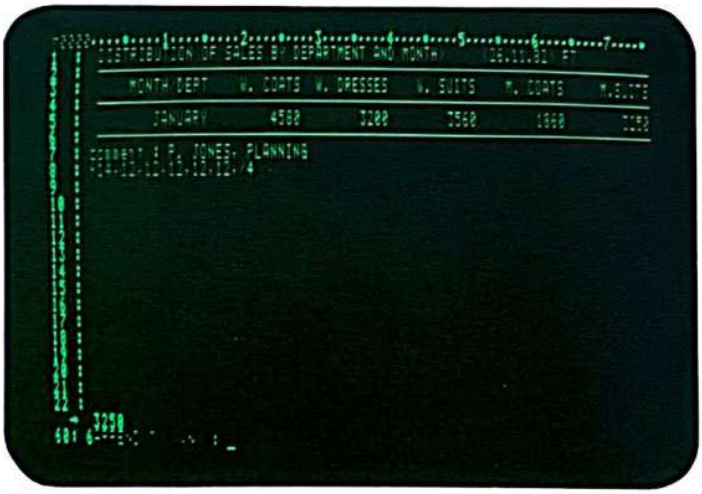
MT MAKE TABLE

3.1.3 The next entry is the amount of sales in January by the Women's Coats Department ("W. COATS") in Column 2.

The reverse field bar will again move to the right, this time to Column 3.

We'll enter data in each of the subsequent columns on that line.

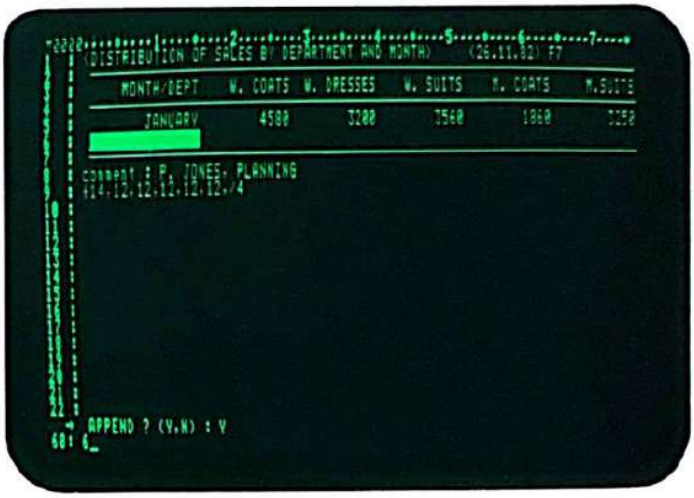
After data is entered in Column 6, and "RETURN" is pressed, the reverse field bar will disappear. In the lower left corner of your screen, PIPS will ask: "APPEND ? (Y,N) :".



3.1.4 If you want to stop data entry here, enter "N" and press "RETURN". PIPS will return to the COMMAND MODE. If you want to continue data entry, enter "Y" to this prompt and press "RETURN. We'll enter "Y" to continue data entry.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---- 248

MAKE TABLE M T


DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 3560 1860 3252
APPEND ? (Y,N) : Y

The reverse field bar moves to the the next line, Column 1, waiting for the next data entry.

DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 3560 1860 3252
FEBRUARY 2500 3100 3500 1400 2750
MARCH 2420 4310 1941 900 1500
APPEND ? (Y,N) : N

3.1.5 After all data has been entered in the TABLE, and PIPS is displaying the "APPEND" prompt, enter "N" and press "RETURN". PIPS will return to the COMMAND MODE.

We have created a TABLE FORMAT and entered data into that TABLE. The TABLE was created in the MASTER BUFFER. The MASTER BUFFER is located in WORKING STORAGE.

PROMPTS M T

```
* SELECT COMMAND = MT
APPEND ? (Y/N) :
* SELECT COMMAND =
```


G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF -------- 245 | SET---89 | TD ---285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75 |

III. PAGE STORAGE & RETRIEVAL

SHOW TITLE BUFFER

GET

PUT

G ---- 26 | IC-Y---46 | L ------91 | ML ---54 | P ---------- 23 | RF --- 56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF ----232 | MT ---15 | PBACK ---- 284 | SB ----76 | ST --- 170 | UPD--195
GR --119 | IN ---282 | MAR --147 | NF --166 | PF ------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

SHOW TITLE BUFFER

B T

4.1 THE BT COMMAND (Show Title Buffer)

Execution of the BT Command displays the contents of the TITLE FILE.

4.2 TITLE FILE ENTRIES

The TITLE FILE displays the following information about each PAGE stored in the MASTER FILE:

a. PAGE number

b. Title of the TABLE on that PAGE

c. Date of creation or last modification

d. Whether the PAGE is FORMATTED or NON-FORMATTED

e. Number of lines on the PAGE

4.3 BT COMMAND EXECUTION

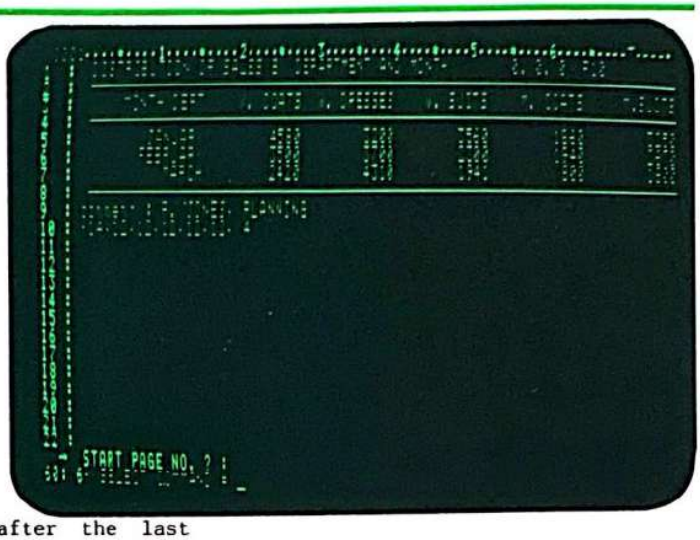
4.3.1 Enter "BT" and press "RETURN". PIPS will ask: "START PAGE NO. ? :"

4.3.2 Enter the number of the first PAGE from which you want PIPS to display PAGE titles. If you want to start from PAGE 1, simply press "RETURN".

If you want to start from a higher PAGE number, enter that number and press "RETURN". We'll press "RETURN" to display PAGE information starting from PAGE 1.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

B T SHOW TITLE BUFFER



Your CRT will clear and the contents of the TITLE FILE will be displayed. The TABLE which was on the screen is safe in the MASTER BUFFER, and will be displayed again after you are finished looking at the TITLE FILE contents.

4.3.3 When a line of hyphens appears after the last line being displayed on the CRT, this indicates that there are more lines in the TITLE file than can be displayed at one time. By pressing "RETURN", the next series of PAGES can be displayed.

4.3.4 When

"*** END OF TITLE FILE ***"

is displayed, this is an indication that there are no more lines in the TITLE file.

Press "RETURN" to again display the contents of the MASTER BUFFER.

PROMPTS B T

```
* SELECT COMMAND = BT
START PAGE NO. ? :
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

5.1 THE P COMMAND (Put)

The P Command, as used in this section, copies the contents of the MASTER BUFFER on to a specified PAGE in the MASTER FILE. This command is also used to copy the MASTER BUFFER contents into the SUB FILE. This procedure will be explained later.

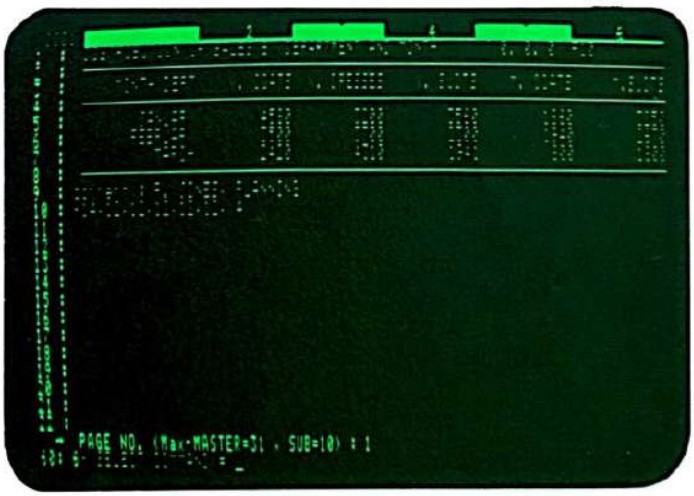
5.2 P COMMAND EXECUTION

5.2.1 Enter "P" and press "RETURN". PIPS asks for the number of the PAGE onto which you want the MASTER BUFFER written.

NOTE: THIS PROMPT ALSO TELLS YOU THE MAXIMUM NUMBER OF PAGES IN THE MASTER FILE AND SUB FILE. SPECIFICATIONS HIGHER THAN THE MAXIMUM FOR EACH FILE WILL NOT BE ACCEPTED.

5.2.2 Enter the PAGE number of the MASTER FILE into which the MASTER BUFFER contents are to be copied.

If there is no data on the PAGE specified, the red operation indicator on Disk Drive #1 will light briefly, and PIPS will return to the COMMAND MODE. THE CONTENTS OF THE MASTER BUFFER HAVE BEEN WRITTEN INTO THE MASTER FILE, BUT THE TABLE WILL REMAIN DISPLAYED ON THE CRT.



G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

P PUT

NOTE: IT IS POSSIBLE TO ENTER A COMMAND AND A SPECIFICATION WITHOUT PRESSING RETURN AFTER EACH ENTRY.

"P;1 RETURN" IS THE SAME AS:

P RETURN
1 RETURN

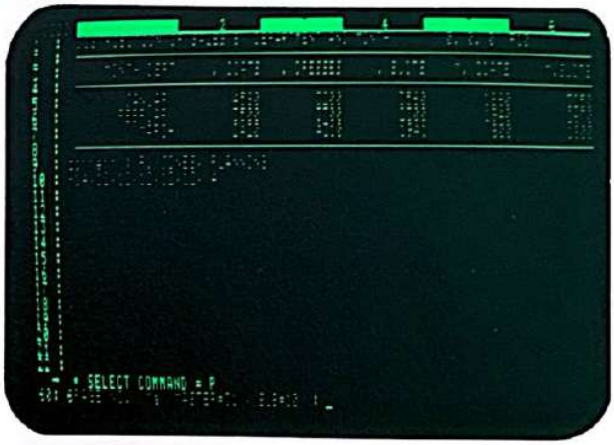
PIPS RECOGNIZES THE SEMICOLON AS A "RETURN". BY USING THE ";" BETWEEN THE COMMAND AND THE FIRST SPECIFICATION, "RETURN" NEED ONLY BE PRESSED ONCE.

AS LONG AS THE ORDER OF PROMPTS IN A COMMAND IS KNOWN, SPECIFICATIONS TO THOSE PROMPTS MAY BE ENTERED IN ORDER SEPARATED BY A ";". AFTER ALL SPECIFICATIONS HAVE BEEN ENTERED, AND "RETURN" PRESSED, THE COMMAND WILL BE EXECUTED WITHOUT THE PROMPTS BEING DISPLAYED.

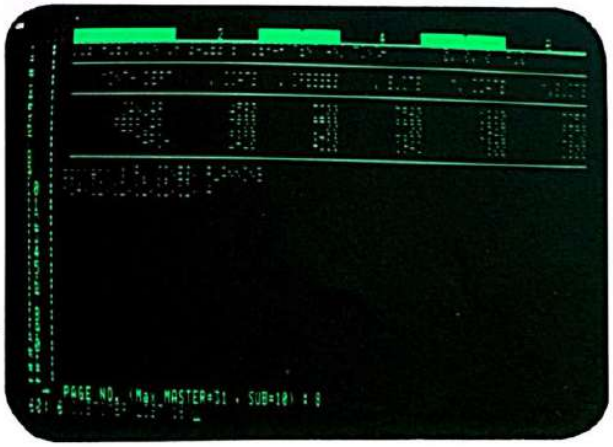
MORE DETAILS ABOUT THIS USEFUL PIPS FUNCTION WILL BE INTRODUCED AS WE GO ON.

5.3 ABORTING P COMMAND EXECUTION

When a PAGE which already contains data is specified, execution will be interrupted and the title of the TABLE will appear at the lower left of the CRT display.



If you do not want to write over that PAGE and erase the file whose title has appeared on the CRT, simply press the ESC key and PIPS will return to the COMMAND MODE.



ACM··143 | BF ···· 105 | CA-D ···58 | CF ··· 55 | CT ····· 41 | DL···· 49 | END ··· 4
AS ···267 | BS ···· 74 | CA-U ··214 | CM ··275 | CTRL ····237 | DRL··· 64 | F····· 97
AU#··270 | BT···· 21 | CAL···· 97 | COL ·· 87 | D ····· 97 | ED···223 | FO ··· 110
B···· 33 | CA-A ··209 | CC····· 42 | CS···185 | DC ····· 53 | EF···226 | FT····248

You may want to execute BT again to select another PAGE number which is blank and then execute the P Command again.

NOTE: PRESS "ESC" (Escape) AT ANY STAGE IN THE EXECUTION OF PIPS COMMANDS TO RETURN TO THE COMMAND MODE.

5.4 WRITING OVER AN EXISTING PAGE

If PIPS indicates that there is already data on the page specified, you have the option to replace the data on that page with the current contents of the MASTER BUFFER. Pressing "RETURN" when the table title is displayed at the lower left of the CRT will cause the current contents of the MASTER BUFFER to be written over the contents of the PAGE specified.

PIPS will return to the COMMAND MODE.

5.5 SPECIAL SYMBOLS

There are three special symbols which can be used in place of PAGE numbers when copying data to the MASTER FILE.

* Enter an asterisk in place of a PAGE number. The PAGE in the MASTER BUFFER will be copied to the PAGE number specified in the last P or G (The G Command will be explained in the next section) Command execution.

+ Enter a plus sign in place of a PAGE number and the PAGE will be copied to the PAGE number next in ascending order to the last PAGE number copied using "*".

- Enter a minus sign in place of a PAGE number to copy to the PAGE next in descending order to the last PAGE number copied using "*".

PROMPTS P

```
* SELECT COMMAND = P
PAGE NO. (MAX MASTER = 31 , SUB=10) :
* SELECT COMMAND =
```


G ---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR ----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

G GET

6.1 THE G COMMAND (Get)

The G Command copies a PAGE from the MASTER FILE into the MASTER BUFFER.

NOTE: THE PAGE TAKEN FROM THE MASTER FILE WITH THE G COMMAND IS WRITTEN OVER THE CONTENTS OF THE MASTER BUFFER.

WHATEVER IS IN THE MASTER BUFFER WHEN THE G COMMAND IS EXECUTED WILL BE ERASED AND REPLACED BY THE CONTENTS OF THE PAGE SPECIFIED IN G COMMAND EXECUTION.

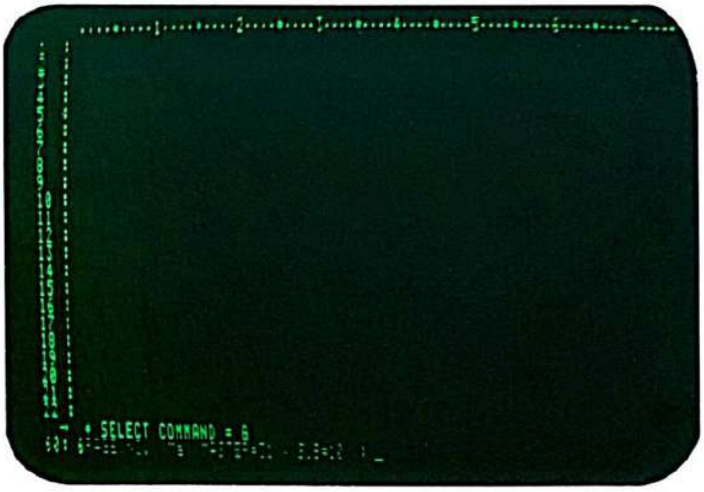
IF YOU WANT A PERMANENT RECORD OF THE CONTENTS OF THE MASTER BUFFER PRIOR TO EXECUTION OF THE G COMMAND, EXECUTE THE P COMMAND TO MAKE A PERMANENT RECORD, THEN EXECUTE THE G COMMAND.

We'll copy PAGE 1 of the MASTER FILE into the MASTER BUFFER. For the purpose of our explanation here, clear the CRT by executing the O Command and pressing "ESC". The screen will clear, and

```
* SELECT COMMAND = _
```

will be displayed at the lower left corner of your screen.

6.2 G COMMAND EXECUTION



6.2.1 Enter "G" then press "RETURN".

PIPS is asking for the number of the PAGE you want to copy in the MASTER BUFFER.

6.2.2 Enter "1" and press "RETURN". In a few seconds the contents of PAGE 1 will appear.

NOTE: AS WE EXPLAINED IN THE NOTE UNDER 5.2.2, A SEMI-COLON CAN BE USED TO MAKE SPECIFICATIONS WITH WHICH IT IS NOT NECESSARY TO PRESS "RETURN" AFTER EACH ENTRY. IN THIS CASE,

G;1 RETURN

IS MUCH FASTER THAN,

G RETURN
1 RETURN

6.3 SPECIAL SYMBOLS

Like the P Command, special symbols may be used in place of page numbers in the G Command,

* Enter an asterisk in place of a PAGE number. PIPS will get the PAGE in the MASTER FILE which was specified in the last P or G Command.

\+ Enter a plus sign in place of a PAGE number and PIPS will get the next PAGE in ascending order to the last PAGE called using "*".

\- Enter a minus sign in place of a PAGE number and PIPS will get the next PAGE in descending order to the last PAGE called using "*".

PROMPTS G

```
* SELECT COMMAND = G
PAGE NO. (MAX MASTER=31 , SUB=10) :
* SELECT COMMAND =
```


G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O----9	PROTECT---276	SFN--203	TRM---75	

IV. THE MASTER BUFFER: SCROLLING

SHOW MASTER BUFFER

G ---- 26
GF -- 247
GR -- 119
IC-N- 80
IC-Y--- 46
IL ---- 77
IN --- 282
IR ---- 44
L ------ 91
LF ---- 232
MAR -- 147
MAW -- 147
ML --- 54
MT --- 15
NF -- 166
O ---- 9
P ---------- 23
PBACK ---- 284
PF ------- 245
PROTECT--- 276
RF --- 56
SB ---- 76
SET --- 89
SFN -- 203
SORT -- 157
ST --- 170
TD --- 285
TRM --- 75
TRS --- 73
UPD -- 195
W --- 37

7.1 THE MASTER BUFFER

The MASTER BUFFER is 150 characters wide and 60 lines long. This gives you ample space for working with large TABLES. However, the CRT can display only 80 characters horizontally and 25 lines vertically at one time.

If there is a TABLE 150 characters wide and 60 lines long in the MASTER BUFFER, any portion of that TABLE can be displayed on the CRT by "SCROLLING". SCROLLING displays portions of the table in increments of 80 characters and 25 lines.

7.2 SCROLLING

Think of your CRT as a microscope and the MASTER BUFFER as a slide. When you move the slide up, you see the lower part of whatever is on the slide. If you move the slide to the right, you will see the left side of your slide specimen. Moving the MASTER BUFFER with the direction arrows is the same as moving a slide under a microscope.

Using the SHIFT and direction arrow keys, you can display any portion of the table in units of 80 characters and 25 lines.

7.2.1

Get PAGE 7 into the MASTER BUFFER.

While holding the SHIFT key down, press the LEFT arrow key. The portion of the MASTER BUFFER being displayed will move one column to the left.

7.2.2

Press "SHIFT" and the UP ARROW together. The CRT will display the lower portions of the MASTER BUFFER in increments of lines.

7.2.3

Press "SHIFT" and the DOWN ARROW together. The CRT display returns to the upper portion of the MASTER BUFFER, again in increments of lines.

7.3 COLUMN AND LINE DISPLAY DURING SCROLLING

While you were SCROLLING a moment ago, you probably noticed that Column 1 disappeared when you were SCROLLING to the left, and the lines at the top of the TABLE disappeared as you moved down toward the bottom of the MASTER BUFFER.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF------- 245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

7.4 THE SET COMMAND AND SCROLLING

The top line and left column of a TABLE usually index what the TABLE contains. In order to keep these lines and columns displayed for reference while scrolling on large TABLES, , execute the SET Command.

With the SET Command, you can reserve a number of lines at the top of the TABLE and a number of columns on the left which will remain stationary during SCROLLING.

NOTE: THE SET COMMAND IS NOT THE SAME AS THE SET PROMPT IN THE O COMMAND (2.1.8). DON'T CONFUSE THE TWO.

7.4.1 With PIPS in the COMMAND MODE, enter "SET" and press "RETURN". The prompt "SET" will appear on your screen.

7.4.2 Enter "HEAD=4" and press "RETURN". The entry "4" represents the NUMBER OF LINES which are to remain stationary during SCROLLING.

PIPS will return to the COMMAND MODE. The first four lines of the TABLE will now remain stationary during SCROLLING.

7.4.3 Enter "SET" and press "RETURN".

7.4.4 Enter "HEAD=/1" and press "RETURN". The entry "1" here represents the NUMBER OF COLUMNS, starting from Column 1, which we want to remain stationary during SCROLLING. The slash "/" tells PIPS we are specifying columns, not rows. The first column on the left will now remain stationary during SCROLLING.

7.4.5 These specificatons will remain in effect for the TABLE in the MASTER BUFFER. If the TABLE is not copied to EXTERNAL STORAGE while these specifications apply, however, the next time the TABLE is called into the MASTER BUFFER the original "O"specifications will apply.

7.4.6 To cancel the specifications, enter "HEAD=0" and "HEAD=/0" to the SET prompts.

PROMPTS SET

```
* SELECT COMMAND = SET
SET:
* SELECT COMMAND =
```


ACM--143	BF---105	CA-D---58	CF---55	CT-------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D-------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC------53	EF---226	FT----248

SHOW MASTER BUFFER B

8.1 THE B COMMAND (Show Master Buffer)

The B COMMAND also allows movement in the MASTER BUFFER.

8.1.1 Enter "B" and press "RETURN". The CRT will display the upper left-most 80 characters and first 25 lines of the MASTER BUFFER.

8.1.2 Enter "B30" and press "RETURN". Your CRT will display the left-most 80 characters of the MASTER BUFFER, starting with line 30 and ending at line 47.

NOTE: OTHER ASPECTS OF THE B COMMAND WILL BE COVERED AS THEY BECOME NECESSARY.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT--157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

V. CORRECTING AND MODIFYING THE TABLE

WRITE

CHANGE TITLE

CHANGE COMMENT

MAKE TABLE

INSERT ROW

INSERT COLUMN: Y BRANCH

DELETE LINE

DELETE COLUMN

MOVE LINE

CHANGE FORMAT

RESET FORMAT

COLUMN ARRANGE: D BRANCH

DRAW LINE

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF---247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR---119 | IN---282 | MAR--147 | NF---166 | PF -------245 | SET---89 | TD---285 | W----37
IC-N--80 | IR ----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

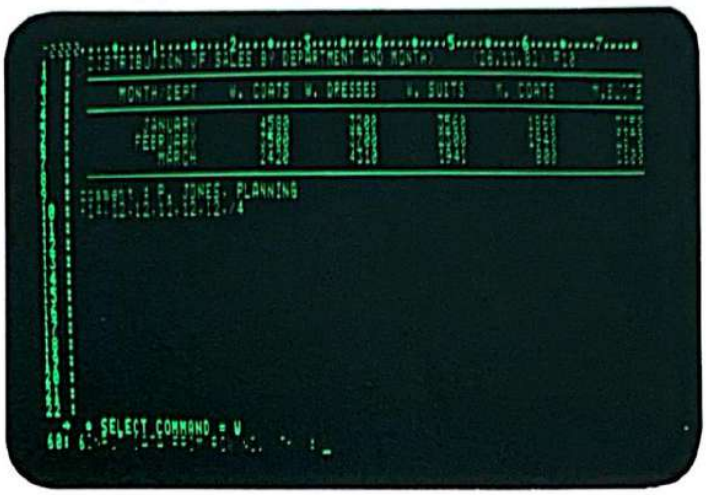
9.1 THE W COMMAND (Write)

With the W Command, you can correct data in the TABLE in the MASTER BUFFER.

The W Command can only be used to modify data on existing lines in the table. Entering new lines of data may only be done with the MT and IR Commands.

We'll first get the TABLE on PAGE 1 of the MASTER FILE into the MASTER BUFFER.

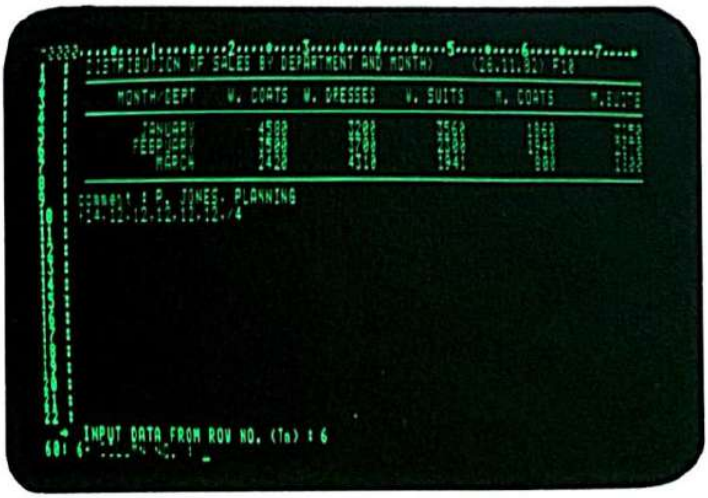
9.2 W COMMAND EXECUTION



9.2.1 Enter "W" and press "RETURN".

9.2.2 PIPS is asking for the number of the line which contains the data to be changed.

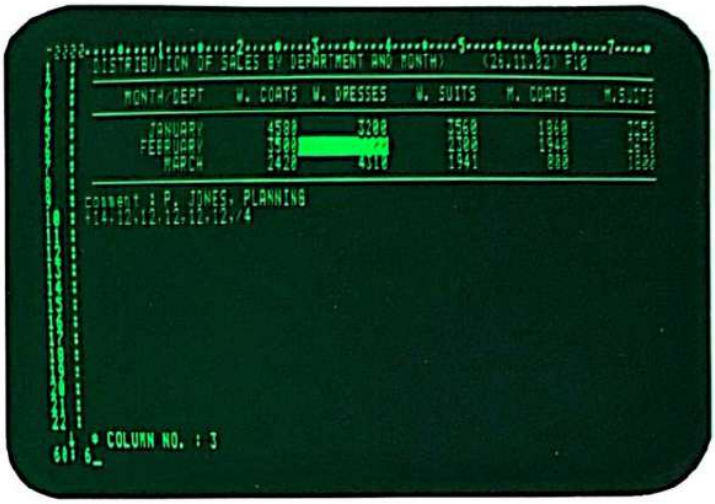
We'll change the figure for February Sales of Women's dresses from "3700", as it appears in the table, to "3600".



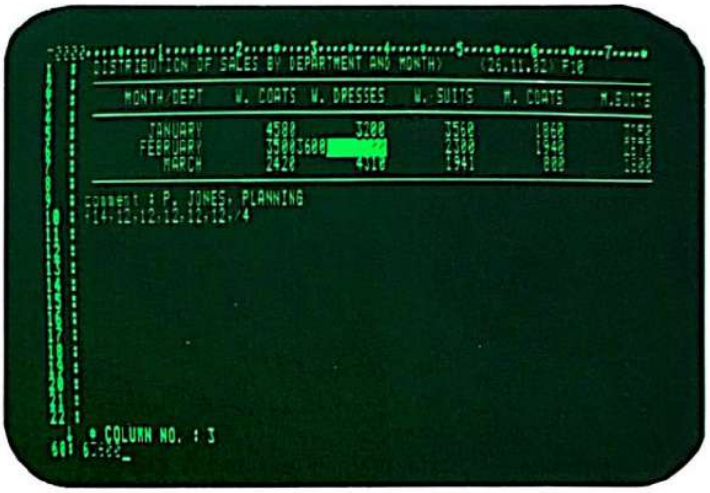
The data to be corrected is in Line 6, so we'll enter "6" and press "RETURN".

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF -------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR ----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

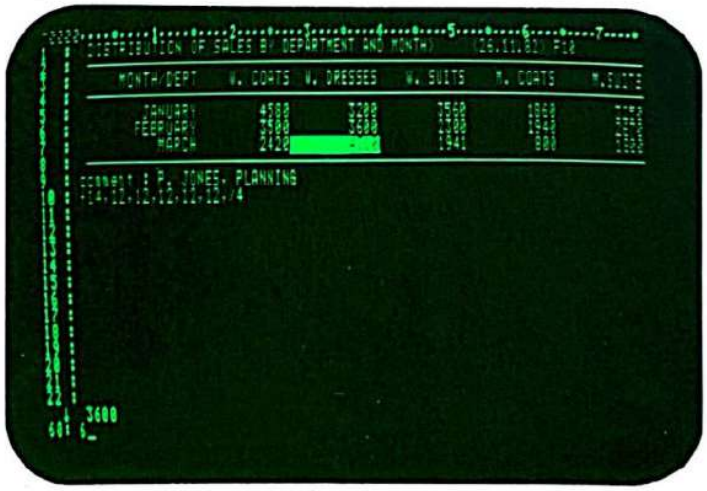
9.2.3 Enter the number of the column which contains the data we're going to change. "W. DRESSES" is in Column 3. Enter "3" and press "RETURN".



9.2.4 The reverse field bar will appear at LINE 6, COLUMN 3. Enter the new data and press RETURN. Before pressing RETURN, some of the old data may still be visible in the reverse field bar. This old data will be erased and written over by the new data when RETURN is pressed.



The data at LINE 6, COLUMN 3 is now "3600". The reverse field bar has moved to LINE 7, COLUMN 3.



ACM··143 | BF ···· 105 | CA-D ···58 | CF ··· 55 | CT ·------ 41 | DL ···· 49 | END ··· 4
AS ···267 | BS ···· 74 | CA-U ·· 214 | CM ·· 275 | CTRL ···· 237 | DRL ··· 64 | F ····· 97
AU✱··270 | BT ···· 21 | CAL ···· 97 | COL ·· 87 | D ------- 97 | ED ···223 | FO ··· 110
B ···· 33 | CA-A ·· 209 | CC ····· 42 | CS ···185 | DC ------ 53 | EF ···226 | FT ···248

NOTE: THERE ARE ONLY TWO PROMPTS IN THE W COMMAND. IT WOULD BE MORE CONVENIENT TO USE THE ";" FUNCTION TO STRING TOGETHER THE COMMAND AND THE SPECIFICATIONS TO THE PROMPTS. FOR EXAMPLE,

W;5;1 RETURN

WOULD PLACE THE REVERSE FIELD BAR AT LINE 5 COLUMN 1.

FURTHER: "W;5;1;106 RETURN" WOULD CHANGE THE ENTRY AT LINE 5, COLUMN 1 TO "106".

9.3 MOVING THE REVERSE FIELD BAR ON THE TABLE

Normally, the reverse field bar moves down one line after a data correction has been made, and RETURN is pressed. If the corrections are to be made across a line, you can specify that the reverse field bar will move to the right each time RETURN is pressed.

9.3.1 To make this specification, press the right arrow key while holding down both the SHIFT and CTRL keys. The reverse field bar will now move to the right every time RETURN is pressed.

9.3.2 To return to top to bottom movement after each correction, press the down arrow key while holding down both the SHIFT and CTRL keys.

A small arrow at the lower left of the CRT indicates which specification is in effect.

9.3.3 The direction arrows above the numeric pad can also be used to move the reverse field bar around the table. Each time a direction arrow is pressed, the reverse field bar moves one position in the direction of the arrow.

9.4 TERMINATING W COMMAND EXECUTION

PIPS returns to the COMMAND MODE if RETURN is pressed when the reverse field bar is located at the last line, last column of the table.

To terminate at any time, press ESC.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

W WRITE

NOTE: THE REVERSE FIELD BAR CAN BE MOVED AROUND THE TABLE WITH RETURN OR THE DIRECTION ARROWS WITHOUT AFFECTING THE DATA AS LONG AS NO ENTRY IS MADE.

NOTE: WHEN EXECUTION OF THE W COMMAND IS TERMINATED WITH THE "ESC" KEY, THE REVERSE FIELD BAR WILL REMAIN WHERE IT WAS WHEN THE "ESC" KEY WAS PRESSED. IGNORE THIS. THE REVERSE FIELD BAR WILL DISAPPEAR UPON EXECUTION OF THE NEXT PIPS COMMAND. THIS HAS NO EFFECT ON THE TABLE.

NOTE: IF YOU PRESS "RETURN" OR MOVE THE REVERSE FIELD BAR WITHOUT MAKING ANY ENTRY WHILE THE REVERSE FIELD BAR IS ON AN ITEM IN THE TABLE, THE DATA WILL REMAIN UNCHANGED. IF YOU BEGIN AN ENTRY FOR CORRECTION AND DECIDE TO ABORT, BEFORE PRESSING "RETURN", PRESS "ESC". THE ORIGINAL DATA WILL REMAIN UNCHANGED.

PROMPTS W

```
* SELECT COMMAND = W
INPUT DATA FROM ROW NO. (Tn) :
* COLUMN NO. :
* SELECT COMMAND =
```


ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---- 248

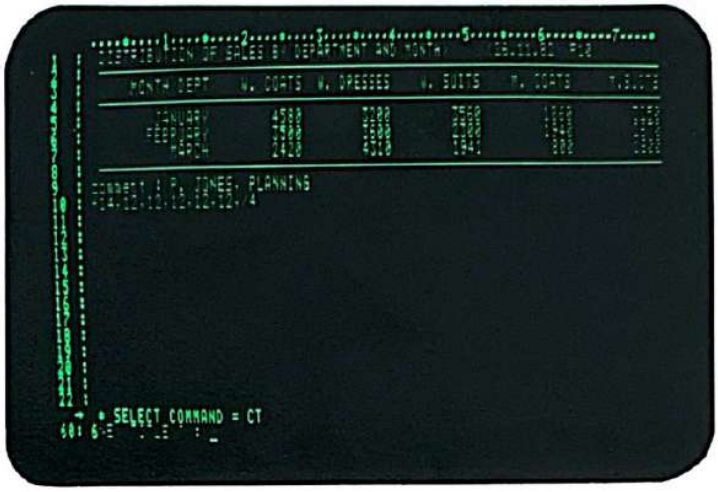
CHANGE TITLE C T

10.1 THE CT COMMAND (Change Title)

With the CT Command, you can change the TABLE title.

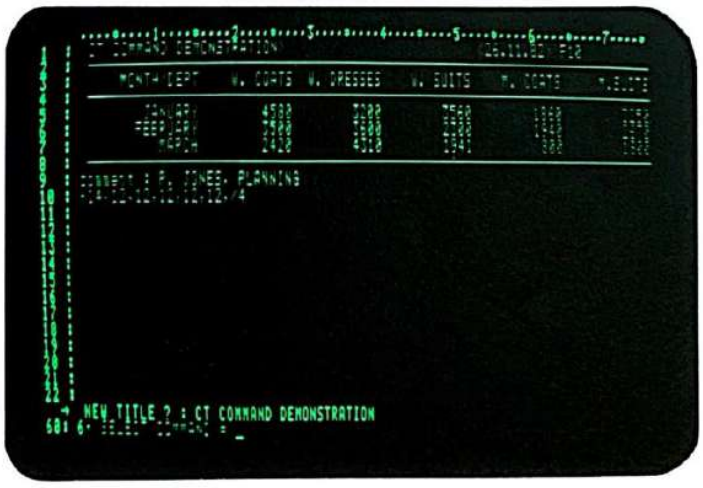
10.2 CT COMMAND EXECUTION

10.2.1 Get any TABLE into the MASTER BUFFER. Enter "CT" then press "RETURN".



PIPS is asking for the new title.

10.2.2 Enter the new title then press "RETURN". The new title will appear at the top of the TABLE.



PROMPTS C T

```
* SELECT COMMAND = CT
NEW TITLE ? :
* SELECT COMMAND =
```

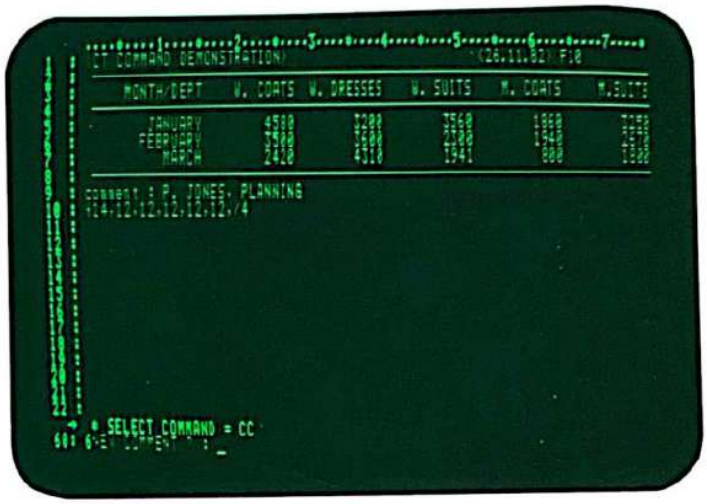

G - - - - 26 | IC-Y---46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN- - - 282 | MAR- - 147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- -203 | TRM - - - 75 |

C C CHANGE COMMENT

11.1 THE CC COMMAND (Change Comment)

Use the CC Command to change the original COMMENT entry in the TABLE.

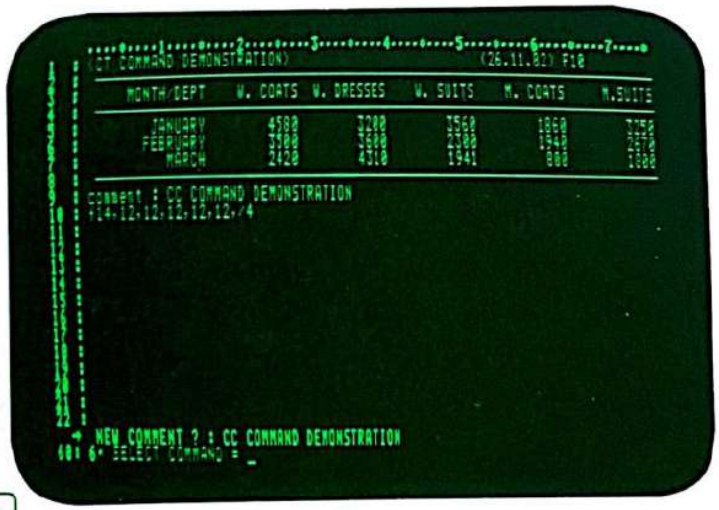
11.2 CC COMMAND EXECUTION


CT COMMAND DEMONSTRATION)
(26.11.82) F10
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4580 3200 7560 1860 7750
FEBRUARY 3700 5600 4300 4540 4510
MARCH 2420 4510 1941 800 1580
Comment : P. JONES, PLANNING
F14:12.12.12.12.12/4
* SELECT COMMAND = CC
601 6* SELECT COMMENT ? : _

11.2.1 Enter "CC" and press RETURN.

PIPS is asking you for the new COMMENT entry.

11.2.2 Enter the new COMMENT, then press "RETURN".


(CT COMMAND DEMONSTRATION)
(26.11.82) F10
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4580 3200 7560 1860 7750
FEBRUARY 3700 5600 4300 4540 4510
MARCH 2420 4510 1941 800 1580
Comment : CC COMMAND DEMONSTRATION
F14:12.12.12.12.12/4
* NEW COMMENT ? : CC COMMAND DEMONSTRATION
601 6* SELECT COMMAND = _

PROMPTS C C

```
* SELECT COMMAND = CC
NEW COMMENT ? :
* SELECT COMMAND =
```

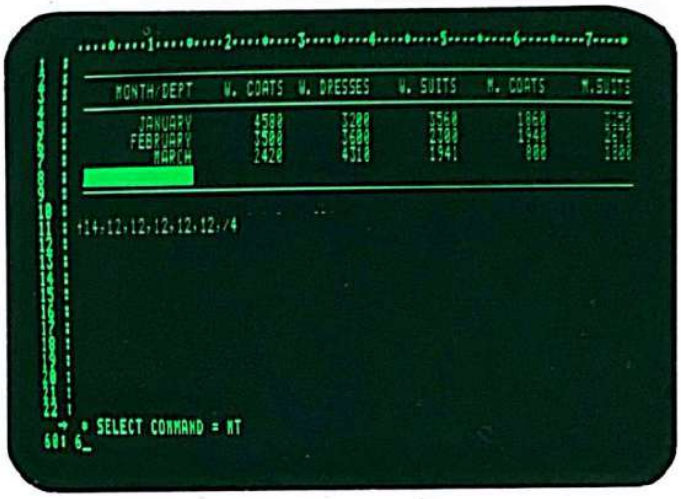

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

MAKE TABLE M T

12.1 THE MT COMMAND (Make TABLE)

the MT Command to add more lines of data to the sample TABLE. From the note below, we're going to add data to our TABLE.

12.2 MT COMMAND EXECUTION

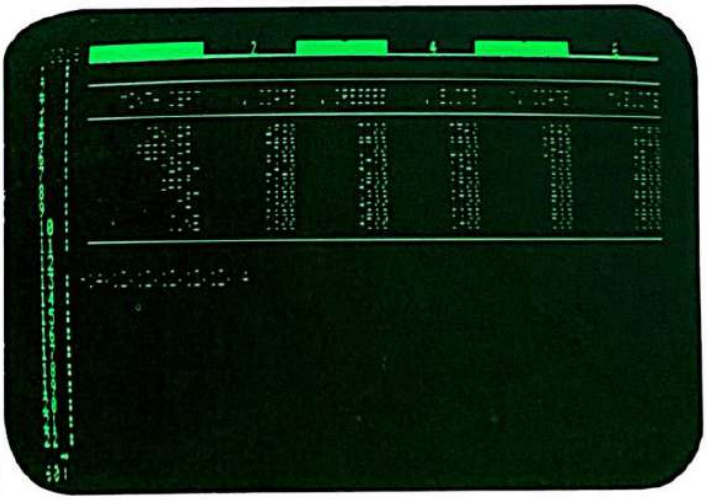

MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4580 7200 7560 1860 7741
FEBRUARY 7580 1600 2500 1240 4871
MARCH 2420 4310 1941 888 1388
* SELECT COMMAND = MT

12.2.1 Enter "MT" and press "RETURN".

The reverse field bar will appear on the line following the last data line in Column 1 of the TABLE.

12.2.2 Enter data in the same manner as explained when the MT Command was first introduced in 3.1.

When you have finished, your TABLE, it should look like the one below.



NOTE: IF YOU GO BEYOND THE MAXIMUM NUMBER OF LINES ALLOWED ON THE PAGE (NOT THE SCREEN), PIPS AUTOMATICALLY RETURNS TO THE COMMAND MODE.

PROMPTS M T

```
* SELECT COMMAND = MT
APPEND ? (Y/N) :
* SELECT COMMAND =
```


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

I R INSERT ROW

13.1 THE IR COMMAND (Insert Row)

The IR Command is used to enter new lines between existing lines in the TABLE in the MASTER BUFFER. Compare this command with the MT and W Commands. The MT Command allows you to enter new data , but only from the line following the last line of existing data. The W Command allows you to correct existing lines of data.

Once you enter "IR" and press "RETURN", you will see that the subsequent operation is very similar to the MT Command.

Get PAGE 2 into the MASTER BUFFER.

13.2 IR COMMAND EXECUTION

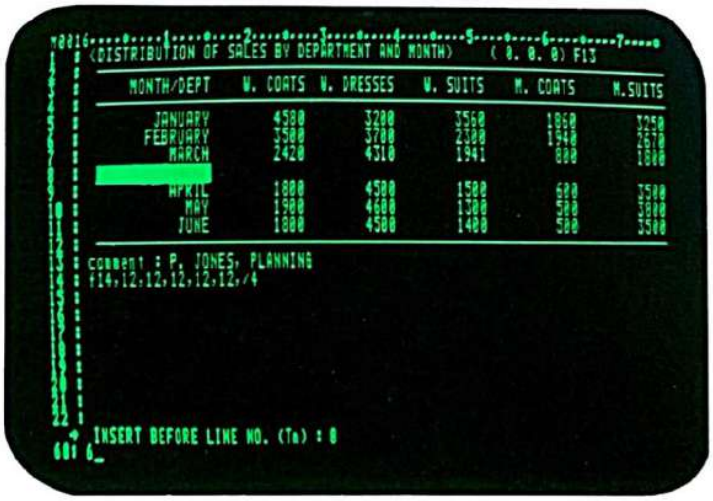
13.2.1 Enter "IR" and press "RETURN".

PIPS wants to know the number of the line before which you will insert the new line.

We are going to provide a line for a sub total for each three-month quarter. The new line for the first quarter sub totals will be inserted between "MARCH" and "APRIL".

(DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH)
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 3560 1060
FEBRUARY 3500 3700 2300 1940
MARCH 2420 4310 1941 800
APRIL 1800 4500 1500 600
MAY 1900 4600 1300 500
JUNE 1800 4500 1400 500
comment : P. JONES, PLANNING
f14,12,12,12,12,12,/4
SELECT COMMAND = IR
INSERT BEFORE LINE NO. (To) : _

13.2.2 The new line will be before the April sales figures, so we'll enter "8" and press "RETURN".


(DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH)
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 3560 1060
FEBRUARY 3500 3700 2300 1940
MARCH 2420 4310 1941 800
APRIL 1800 4500 1500 600
MAY 1900 4600 1300 500
JUNE 1800 4500 1400 500
comment : P. JONES, PLANNING
f14,12,12,12,12,12,/4
INSERT BEFORE LINE NO. (To) : 8

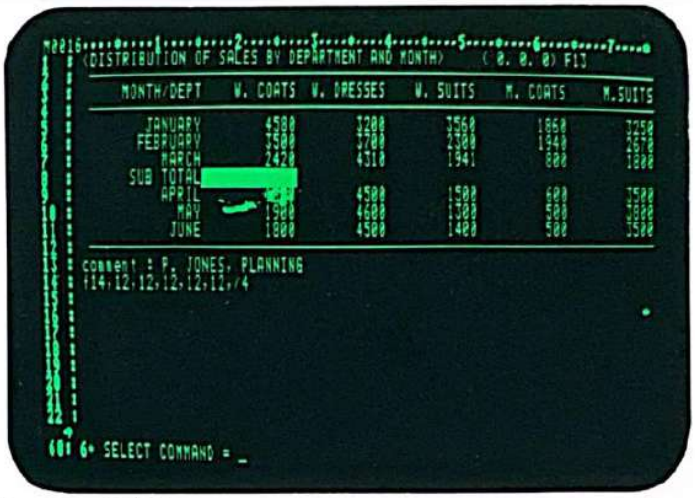
13.2.3 April, May and June have all moved down one line and Line 8 has opened up, with the reverse field bar at Line 8, Column 1. PIPS is waiting for input at this position.

ACM - 143 | BF - 105 | CA-D - 58 | CF - 55 | CT - 41 | DL - 49 | END - 4
AS - 267 | BS - 74 | CA-U - 214 | CM - 275 | CTRL - 237 | DRL - 64 | F - 97
AU# - 270 | BT - 21 | CAL - 97 | COL - 87 | D - 97 | ED - 223 | FO - 110
B - 33 | CA-A - 209 | CC - 42 | CS - 185 | DC - 53 | EF - 226 | FT - 248

INSERT ROW [I] [R]

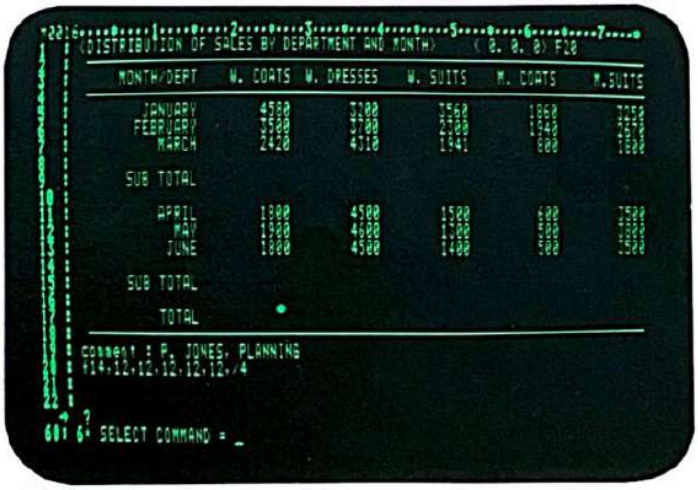
Enter "SUB TOTAL" here and press "RETURN".

13.2.4 The reverse field bar has moved to Column 2 and is waiting for input.


(DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH)
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 7560 1860 3750
FEBRUARY 3500 3700 2300 1540 4500
MARCH 2420 4310 1941 800 1800
SUB TOTAL
APRIL 1300 4500 1500 600 3500
MAY 1500 4600 1300 500 4000
JUNE 1800 4500 1400 500 3500
comment : P. JONES, PLANNING
*14,12,12,12,12,12,/4
SELECT COMMAND = _

Calculations will be covered later. For now, press "ESC". PIPS will return to the COMMAND MODE.

13.2.5 Make your TABLE look like the one below. Create empty lines to improve the appearance of the TABLE by pressing "ESC" with the reverse field bar at the first column.


(DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH)
MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 7560 1860 3750
FEBRUARY 3500 3700 2300 1540 4500
MARCH 2420 4310 1941 800 1800
SUB TOTAL
APRIL 1300 4500 1500 600 3500
MAY 1500 4600 1300 500 4000
JUNE 1800 4500 1400 500 3500
SUB TOTAL
TOTAL
comment : P. JONES, PLANNING
*14,12,12,12,12,12,/4
SELECT COMMAND = _

PROMPTS [I] [R]

```
* SELECT COMMAND = IR
INSERT BEFORE LINE NO. (Tn) :
* SELECT COMMAND =
```


G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O----9	PROTECT---276	SFN--203	TRM---75	

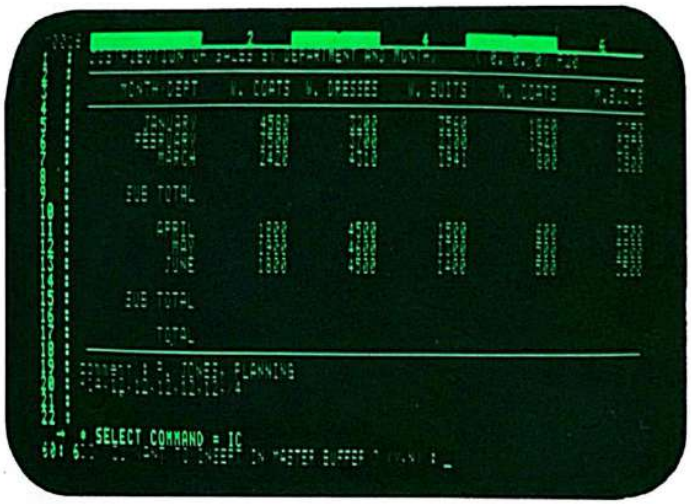
IC INSERT COLUMN: Y BRANCH

14.1 THE IC COMMAND (Insert Column): "Y"BRANCH

The IC Command allows you to insert a column in your TABLE. It is similar to the IR Command with the exception that we are going to be inserting columns and not lines.

14.2. "Y" BRANCH EXECUTION

14.2.1 We're going to create two more columns: one for women's hats and another for men's hats.



Enter "IC" and press "RETURN".

14.2.2 PIPS is asking, "DO YOU WANT TO INSERT IN MASTER BUFFER ? (Y,N)." The "N" specification to this prompt will be covered in a later section, after we have introduced SUB BUFFER operations, so enter "Y" and press "RETURN".

14.2.3 The next specification is to the "INSERT BEFORE COLUMN NO. :" prompt. Let's put the new column for women's hats ("W. HATS") before Column 2 ("W. COATS").

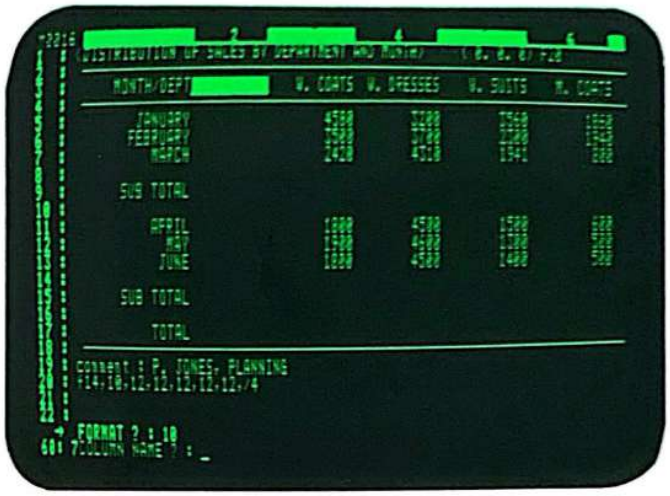
Enter "2" and press "RETURN".

14.2.4 PIPS is telling us how many character spaces are left before reaching the maximum line width of 150 characters.

To the FORMAT prompt, enter the width of the new column. Let's make this column 10 spaces wide. Enter "10" and press "RETURN".

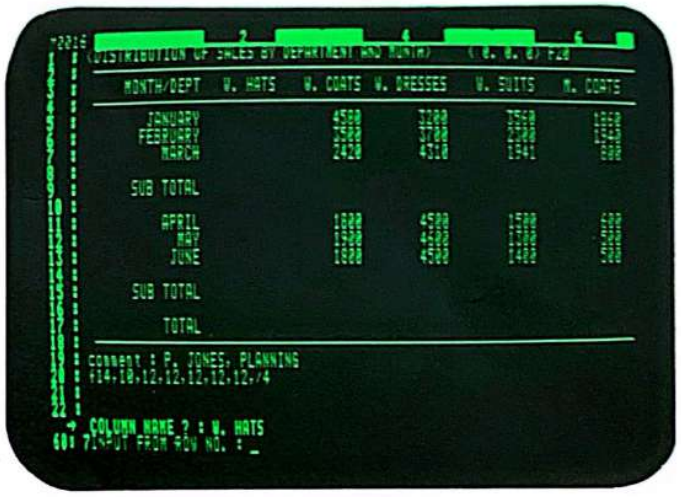
ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

INSERT COLUMN: Y BRANCH



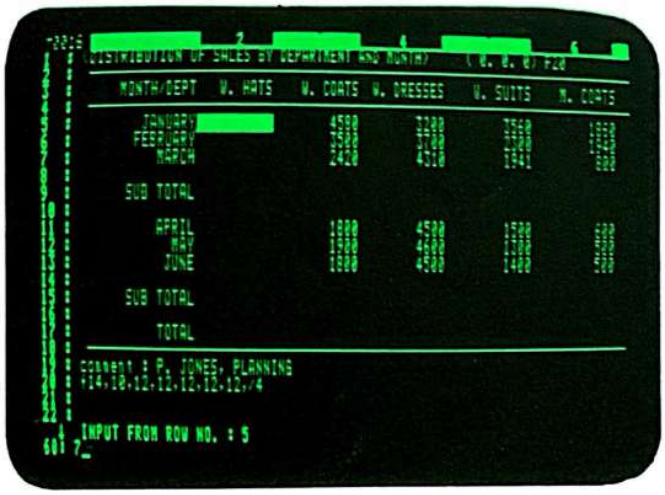
The reverse field bar will appear on the title line of the new column. PIPS is waiting for the new title entry.

14.2.5 Enter "W. HATS" for the new column title, then press "RETURN".



14.2.6 "INPUT FROM ROW NO. :" will be the next prompt. Enter the line number from where you will begin data input for the "W. HATS" Column, press RETURN and enter the data.

When you are finished with the entries, press "ESC".



G - - - - 26	IC-Y- - -46	L - - - - - -91	ML - - -54	P - - - - - - - - - -23	RF - - - 56	SORT- - -157	TRS- - -73
GF - - 247	IL - - - -77	LF- - - -232	MT - - -15	PBACK- - - - 284	SB - - - -76	ST - - - 170	UPD- -195
GR - - 119	IN- - -282	MAR- - 147	NF - - 166	PF - - - - - - - 245	SET- - -89	TD - - - 285	W - - - 37
IC-N- -80	IR - - - -44	MAW- - 147	O - - - - 9	PROTECT- - -276	SFN- -203	TRM - - -75	

I C INSERT COLUMN: Y BRANCH

14.2.7 Insert a new column for men's hats before Column 5.

PROMPTS I C

```
* SELECT COMMAND = IC
DO YOU WANT TO INSERT IN MASTER BUFFER ? (Y/N) : Y
INSERT BEFORE COLUMN NO. :

ONLY 124 FORMAT LEFT
FORMAT ? :

COLUMN NAME ? :
INPUT FROM ROW NO. :
* SELECT COMMAND =
```


ACM - - 143 | BF - - - - 105 | CA-D - - - 58 | CF - - - 55 | CT - - - - - - - - 41 | DL - - - - 49 | END - - - 4
AS - - - 267 | BS - - - - 74 | CA-U - - 214 | CM - - 275 | CTRL - - - - 237 | DRL - - - 64 | F - - - - - 97
AU# - - 270 | BT - - - - 21 | CAL - - - - 97 | COL - - 87 | D - - - - - - - - 97 | ED - - - 223 | FO - - - 110
B - - - - 33 | CA-A - - 209 | CC - - - - - 42 | CS - - - 185 | DC - - - - - - 53 | EF - - - 226 | FT - - - 248

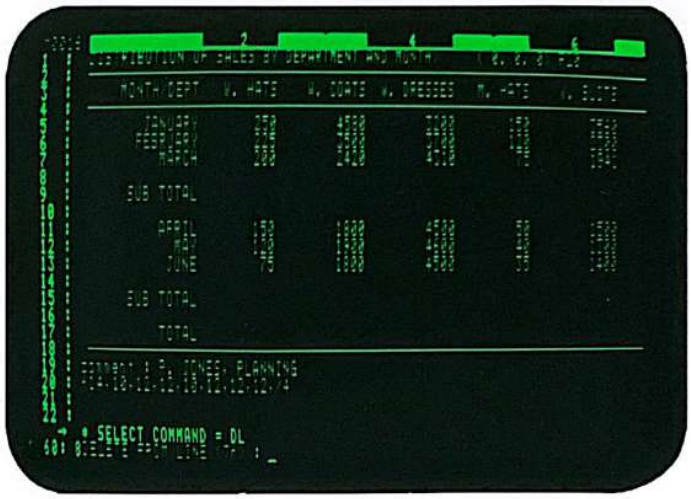
DELETE LINE D L

15.1 THE DL COMMAND (Delete Line)

The DL Command is used to delete a data line, a block of data lines, or all the data lines from the TABLE in the MASTER BUFFER.

15.2 DELETING A SINGLE LINE FROM A TABLE

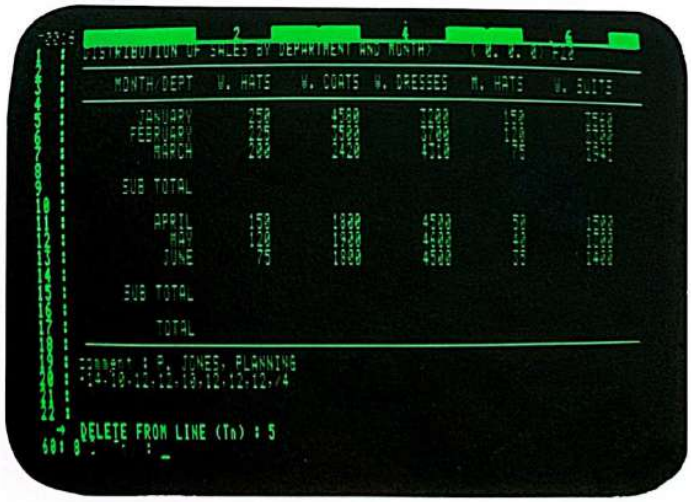
15.2.1 Enter "DL" and press "RETURN".



15.2.2 PIPS will ask "DELETE FROM LINE (Tn) :". To delete the "1ST QUARTER" Line. Enter "5" and press "RETURN".

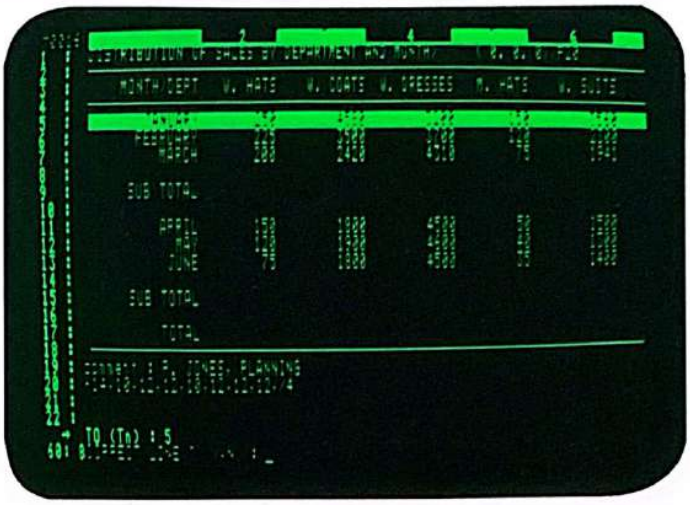
15.2.3 PIPS will ask, "TO (Tn) "?

To delete only one line, enter that line number again to this prompt.

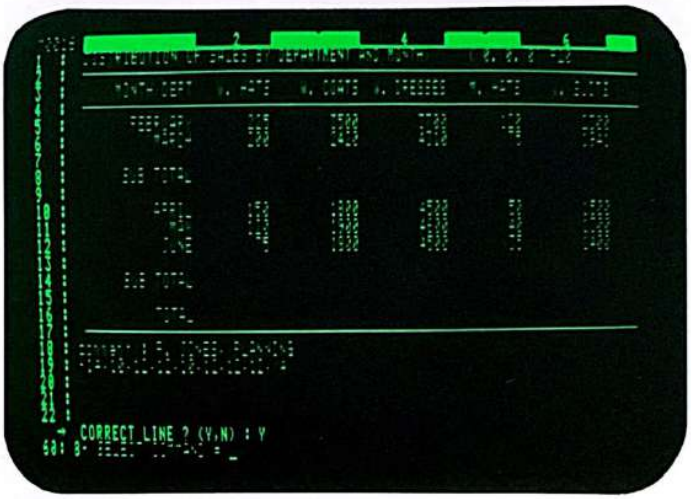


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75 |

DL DELETE LINE



Line 5 will appear in reverse field, and PIPS will ask, "CORRECT LINE ? (Y/N) :". If you have specified the wrong line, you now have a chance to go back to the beginning of the command sequence and start over. If you do not want to delete the line shown in reverse field, enter "N" and press "RETURN". PIPS will display the first prompt again.



15.2.4 If "Y" is entered, the line will be deleted and PIPS will return to the COMMAND MODE.

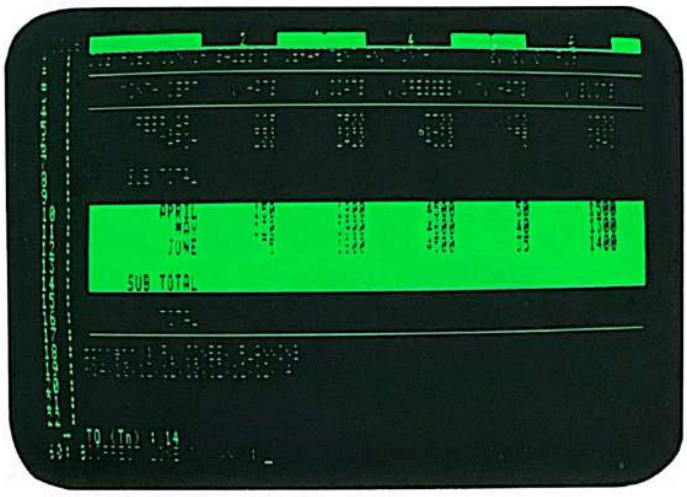
15.3 DELETING A SERIES OF LINES

15.3.1 Let's delete the data for the 2ND QUARTER, Lines 10 through 14.

Enter "10" to the first prompt, "14" to the second.

ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT -------- 41	DL ---- 49	END --- 4
AS ---267	BS ----74	CA-U -- 214	CM -- 275	CTRL ----237	DRL ---64	F ------ 97
AU#--270	BT ----21	CAL ---- 97	COL -- 87	D ---------97	ED ---223	FO ---110
B ---- 33	CA-A -- 209	CC ------42	CS ---185	DC -------53	EF ---226	FT ----248

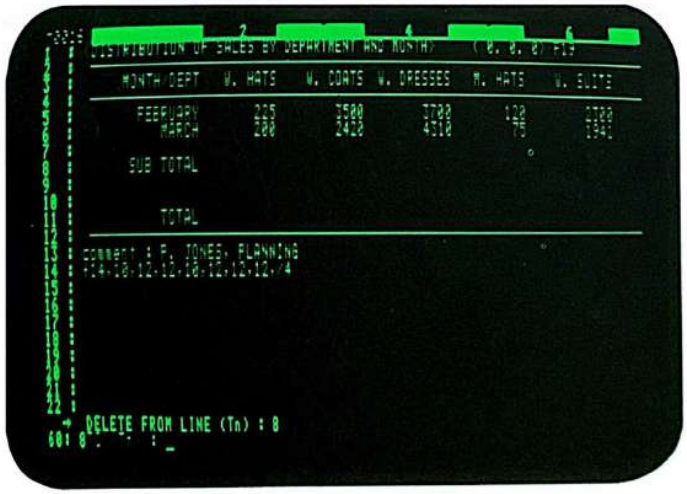
Lines 10-14 will appear in reverse field, and PIPS will ask you if these are the lines you want to delete.



15.3.2 Enter "Y" and press "RETURN". The lines you have specified will be deleted.

15.4 DELETING FROM A SPECIFIED LINE TO AND INCLUDING THE LAST LINE OF DATA IN THE TABLE

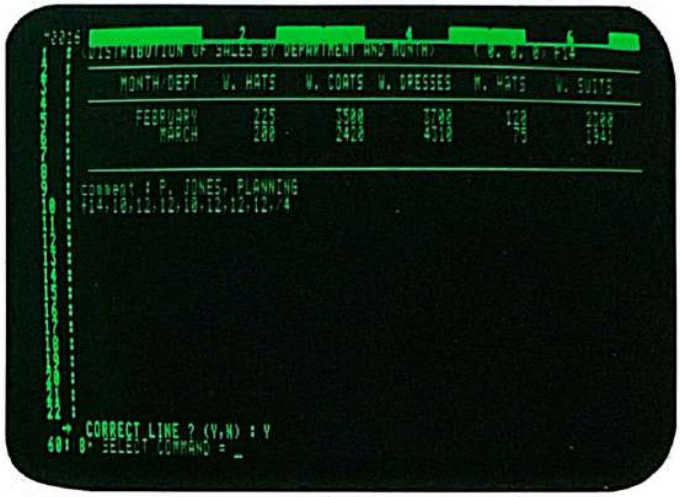
15.4.1 Now there is no need for the lines between Line 8 and the end of the TABLE. Let's delete this group of lines.


MONTH DEPT W. HATS W. COATS W. DRESSES M. HATS M. SUITS
FEBRUARY 225 3500 3700 120 2200
MARCH 280 2420 4510 75 1540
SUB TOTAL
TOTAL
DELETE FROM LINE (To) : 8

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

DL DELETE LINE

Enter "8" to the first prompt and "T" to the "TO (Tn) :" prompt. "T" specifies the last data line of the TABLE. After confirming the lines to be deleted, enter "Y", then press "RETURN".


MONTH/DEPT W. HATS W. COATS W. DRESSES M. HATS M. SUITS
FEBRUARY 225 7500 3700 420 1700
MARCH 200 5420 4510 75 1941
CORRECT LINE ? (Y,N) : Y
* SELECT COMMAND =

15.5 DELETING ALL DATA LINES FROM THE TABLE

15.5.1 Enter "A" to the first prompt and "Y" to the "CORRECT LINE ? :" prompt. Press "RETURN".

NOTE: ENTERING "A" TO THE FIRST PROMPT OF THE DL COMMAND IS A VERY QUICK WAY TO CREATE A BLANK PAGE ALREADY FORMATTED. IN OTHER WORDS, IF YOU WANT TO MAKE A SEPARATE TABLE WITH THE SALES FIGURES FROM JULY TO DECEMBER, DELETING ALL DATA LINES FROM THE JANUARY TO JUNE TABLE GIVES YOU A BLANK PAGE ALREADY FORMATTED TO ACCEPT THE DATA.

PROMPTS DL

```
* SELECT COMMAND = DL
DELETE FROM LINE (Tn):
TO (Tn):
CORRECT LINE ? (Y/N)
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT-------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D-------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

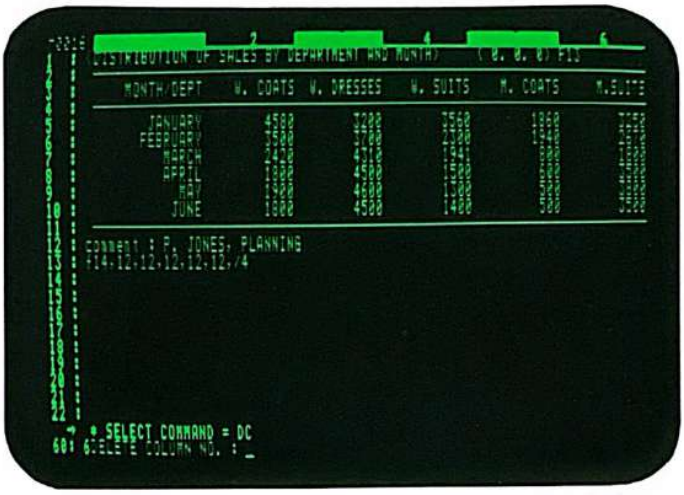
DELETE COLUMN [D][C]

16.1 THE DC COMMAND (Delete Column)

The DC Command is used to delete columns from the TABLE in the MASTER BUFFER.

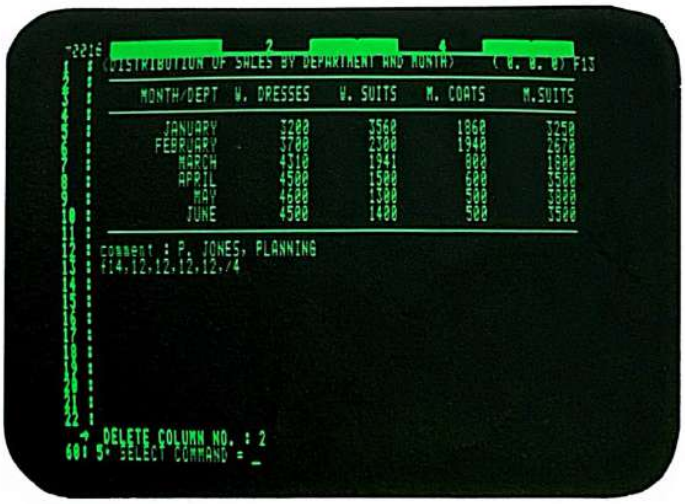
Get PAGE 2 into the MASTER BUFFER.

16.2 DC COMMAND EXECUTION



16.2.1 Enter "DC", then press "RETURN".

16.2.2 PIPS will ask, "DELETE COLUMN NO. :". Enter the number of the column to be deleted. We're going to delete Column 2 ("W. COATS").


MONTH/DEPT W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 3200 3560 1860 3250
FEBRUARY 3700 2300 1940 2570
MARCH 4310 1941 800 1800
APRIL 4500 1500 600 3500
MAY 4600 1700 500 1900
JUNE 4500 1400 500 3500
Comment : P. JONES, PLANNING
F14,12,12,12,12,12,/4
* DELETE COLUMN NO. : 2
60: SELECT COMMAND = _

Enter "2" and press "RETURN".

The column specified has been deleted. PIPS will automatically return to the COMMAND MODE.

NOTE: WITH THE DC COMMAND, THERE IS NO CONFIRMATION PROMPT LIKE THE DL COMMAND'S "CORRECT LINE ? (Y/N)" PROMPT. YOU HAVE NO SECOND CHANCE TO CONFIRM YOUR COLUMN NUMBER SPECIFICATION WITH THE REVERSE FIELD BAR DISPLAY, SO BE SURE YOU HAVE ENTERED THE CORRECT COLUMN NUMBER BEFORE PRESSING "RETURN".

PROMPTS [D][C]

```
* SELECT COMMAND = DC
DELETE COLUMN NO. :
* SELECT COMMAND =
```

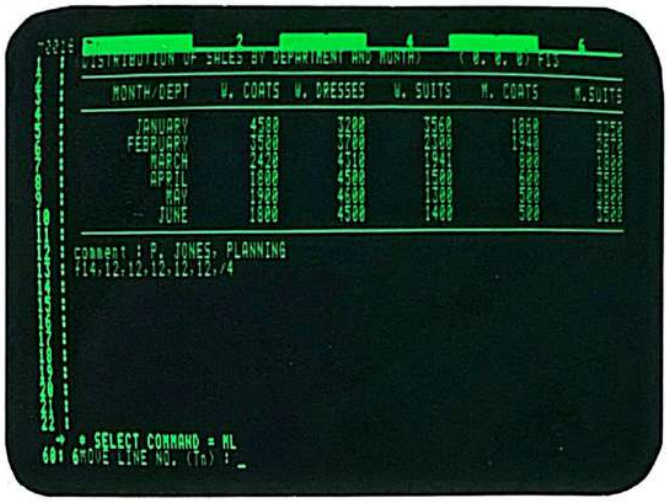

G - - - - 26 | IC-Y- - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN - - - 282 | MAR- - -147 | NF - - 166 | PF - - - - - - - 245 | SET- - -89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - -276 | SFN- -203 | TRM - - - 75 |

M L MOVE LINE

17.1 THE ML COMMAND (Move Line)

The ML Command moves one line of data in the TABLE to a location in the TABLE you specify.

17.2 ML COMMAND EXECUTION


MONTH/DEPT W. COATS W. DRESSES W. SUITS M. COATS M.SUITS
JANUARY 4500 3200 3560
FEBRUARY 3500 3700 2700 1940
MARCH 2420 4510 1941
APRIL 1000 4500 1500
MAY 1900 4600 1300
JUNE 1800 4500 1400 500
Comment : P. JONES, PLANNING
!14,12,12,12,12,12,/4
* SELECT COMMAND = ML
MOVE LINE NO. (Tn) : _

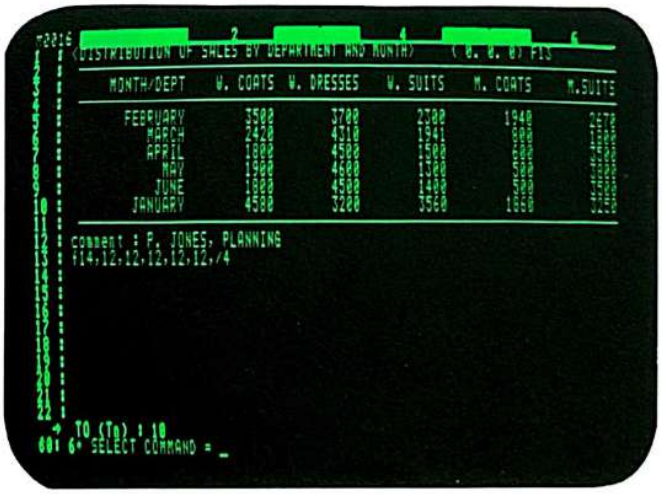
17.2.1 Enter "ML" then press "RETURN".

17.2.2 In response to the first prompt, enter the number of the line you want to move. Let's move the "JANUARY" line (Line 5) to Line 10.

Enter "5" and press "RETURN".

17.2.3 PIPS will ask, "TO (Tn) :".

Enter the line number to which you want to move Line 5. We'll move it to Line 10. Enter "10" and press "RETURN".



PROMPTS

```
* SELECT COMMAND = ML
MOVE LINE NO. (Tn) :
TO (Tn) :
* SELECT COMMAND =
```


ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

CHANGE FORMAT C F

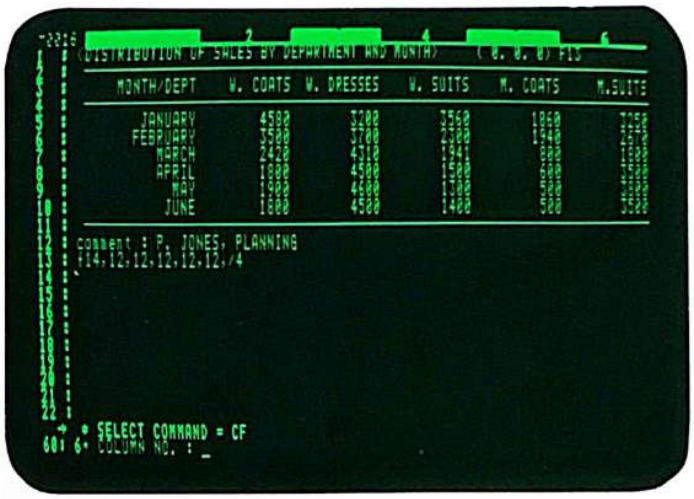
18.1 THE CF COMMAND (Change Format)

The CF Command allows you to increase or decrease the number of characters previously specified for a column.

18.2 CF COMMAND EXECUTION

18.2.1 Enter "CF" and press "RETURN".

18.2.2 Enter the number of the column whose FORMAT you want to change. We're going to change the FORMAT of Column 2, so enter "2" and press "RETURN".



18.2.3 PIPS is asking for the new FORMAT of Column 2. The present FORMAT of Column 2 is 12. We'll change the FORMAT to a width of 7 characters.

Enter "7" and press "RETURN".

NOTE: WHEN YOU SPECIFY A NUMBER OF SPACES WHICH IS LESS THAN THE ORIGINAL COLUMN FORMAT, PIPS WILL DELETE SPACES STARTING FROM THE LEFT. IN THIS CASE, THE FIRST THREE SPACES STARTING FROM THE LEFT HAVE BEEN DELETED.

PROMPTS C F

* SELECT COMMAND = CF
COLUMN NO. :
* SELECT COMMAND =

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

R F RESET FORMAT

19.1 THE RF COMMAND (Reset Format)

With the RF Command, you can justify data in a particular column either to the left or to the right of that column.

NOTE: THE RF COMMMAND CANNOT BE EXECUTED UNLESS THERE IS DATA IN THE TABLE. THIS MEANS TABLES CONTAINING ONLY TITLES WITHOUT DATA CANNOT BE JUSTIFIED. ONCE DATA HAS BEEN ENTERED IN THE TABLE, HOWEVER, THIS COMMAND WILL JUSTIFY BOTH THE DATA AND THE TITLE OF THE SPECIFIED COLUMN.

As stated earlier, PIPS initially justifies new data entries to the right side of the column because most data entries will probably be numbers.

With alpha entries, however, you will probably want them to be left justified, i.e. begin from the left side of a column.

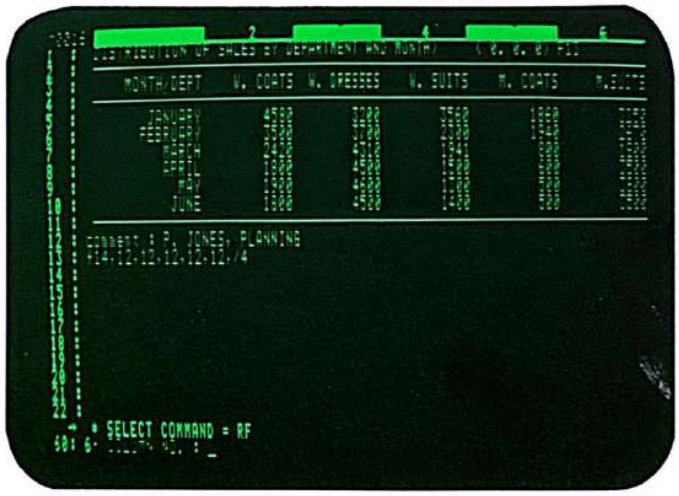
19.2 RF COMMAND EXECUTION

19.2.1 Enter "RF" and press "RETURN".

19.2.2 PIPS is asking you for the number of the column you want to justify.

Let's justify the alpha entries in Column 1 to make them easier to read.

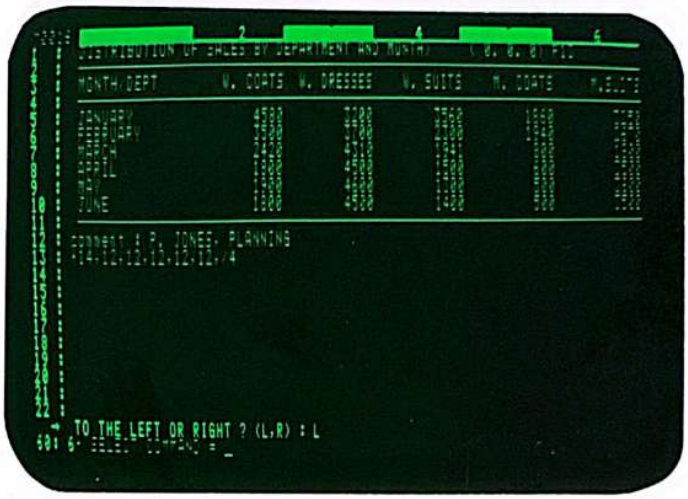
Enter "1" and press "RETURN".



19.2.3 PIPS is asking you if you want to justify Column 1 to the left or the right. We want to justify to the left, so enter "L", then press "RETURN".

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

R F RESET FORMAT



19.2.4 If you want to keep the sample TABLE in this FORMAT, execute the P Command to copy the TABLE with this FORMAT to the MASTER FILE.

CAUTION: AFTER SPECIFYING A LEFT JUSTIFICATION FOR ENTRIES WITH THE RF COMMAND, DO NOT EXECUTE THE CF COMMAND WITH A COLUMN SPECIFICATION LESS THAN THE ORIGINAL FORMAT. PIPS WILL DELETE COLUMN SPACES FROM THE LEFT, AND YOU WILL LOSE CHARACTERS ON THE LEFT. SEE "NOTE" UNDER 18.2.3.

PROMPTS R F

```
* SELECT COMMAND = RF
COLUMN NO. :
TO THE LEFT OR RIGHT? (L,R) :
* SELECT COMMAND =
```


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

C A COLUMN ARRANGE: D BRANCH

20.1 THE CA COMMAND (Column Arrange)

The CA Command is very versatile and allows you to rearrange the data in your TABLE in units of columns.

This command has three main branches, or functions, from which to choose after entering "CA":

(1) D (DOCKING)
(2) A (ARRANGE)
(3) U (UPDATE)

The ARRANGE and UPDATE Branches involve other commands which have not yet been introduced, so they will be covered later in this guide. For now, we'll take a look at the DOCKING Branch.

20.2 CA COMMAND: "D" BRANCH EXECUTION

The DOCKING Branch alone allows four separate operations:

(1) Rearranging column order in a TABLE.

(2) Rearranging and deleting columns in a TABLE.

(3) Rearranging and duplicating columns in a TABLE.

(4) Adding columns from a PAGE in the MASTER FILE to the TABLE in the MASTER BUFFER (Rearrangement and deletion are also possible.)

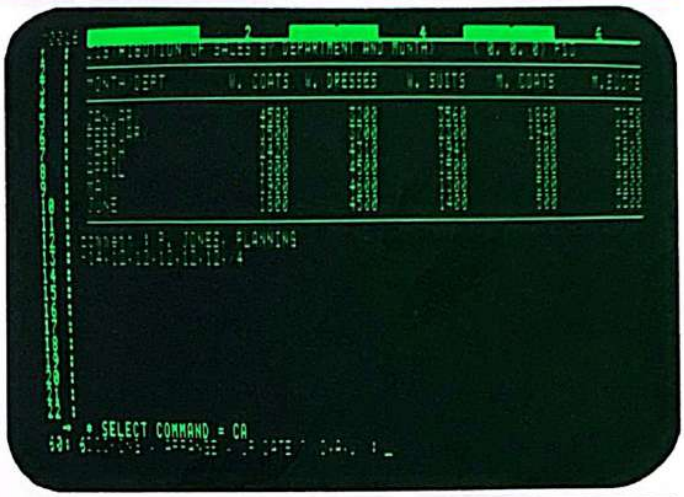
20.3 REARRANGING THE ORDER OF COLUMNS IN A TABLE

In this operation we want to change the order of the columns of the TABLE in the MASTER BUFFER. Get the sample TABLE on PAGE 2 into the MASTER BUFFER.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

COLUMN ARRANGE: D BRANCH

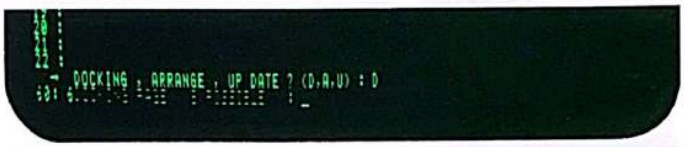
C A



20.3.1 Enter "CA" to the "SELECT COMMAND" prompt, then enter "D" to the next prompt.

20.3.2 PIPS will ask, "DOCKING PAGE (B POSSIBLE) :". We are now working only with columns in the TABLE in the MASTER BUFFER, so specify "B".

Enter "B", then press "RETURN".



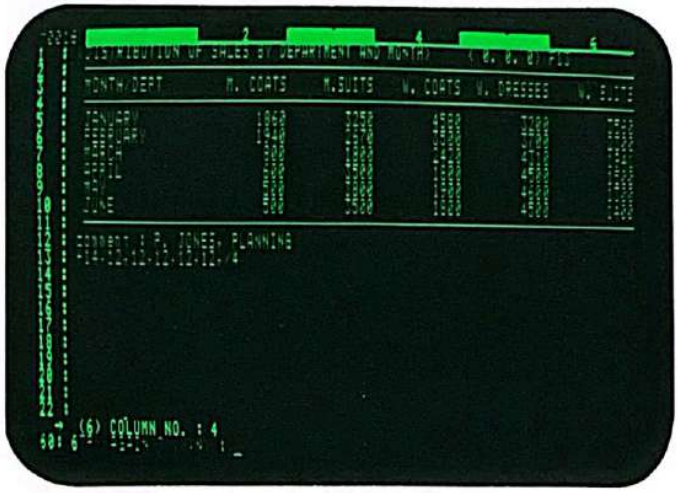
20.3.3 Enter the number of columns the TABLE will contain after rearrangement. There are 6 columns in the sample TABLE. We are not going to add or delete any columns, so enter "6".

20.3.4 Your response to this and the next 5 prompts will be numbers, the COLUMN NUMBERS of the original TABLE in the new TABLE. The order in which these column numbers are entered determines the order of their appearance in the new TABLE.

We want Columns 5 and 6 (men's sales) of the present TABLE to precede Columns 2,3 and 4 (women's sales) in the new TABLE. Follow the entries in the partial screens:

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

C A COLUMN ARRANGE: D BRANCH



When PIPS asks, "TRY AGAIN ?", you have a chance to rearrange the TABLE again if you are not satisfied with the specifications you just made.

A "Y" entry takes you back to the "DOCKING, ARRANGE UP DATE ?" prompt where you can once again specify "D" and repeat the column number entries.

NOTE: WHILE HOLDING THE "CTRL" KEY DOWN, PRESS THE DOWN ARROW KEY. ON THE SECOND LINE FROM THE BOTTOM OF YOUR SCREEN, PIPS WILL DISPLAY THE PREVIOUS PROMPT AND YOUR PREVIOUS SPECIFICATIONS. YOU CAN DISPLAY THE LAST 9 PROMPTS AND SPECIFICATIONS IN THIS MANNER. YOU CAN SEE THEM IN REVERSE ORDER BY REPEATEDLY PRESSING THE DOWN ARROW KEY WHILE HOLDING DOWN "CTRL".

HOLDING DOWN "CTRL" AND PRESSING THE UP ARROW KEY WILL DISPLAY THE PROMPTS AND RESPONSES IN THE ORDER YOU EXECUTED THEM.

If you are satisfied with the table as it is displayed on the CRT, enter "N" and press "RETURN". PIPs will return to the COMMAND MODE.

20.4 REARRANGING AND DELETING COLUMNS IN A TABLE

To eliminate columns, all you have to do is not enter the numbers of the columns you want to exclude when telling PIPS the arrangement of the new TABLE.

20.5 REARRANGING AND DUPLICATING COLUMNS IN A TABLE

To duplicate a column while rearranging, the column number must be specified twice. For example, if we were to duplicate Column 9 in a TABLE, we would make the following specifications, pressing "RETURN" between each entry.

1 9 1 3 4 5 6 7 8 9

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU# --270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---248

COLUMN ARRANGE: D BRANCH

C A

20.6 ADDING COLUMNS FROM A PAGE IN THE MASTER FILE TO A TABLE IN THE MASTER BUFFER

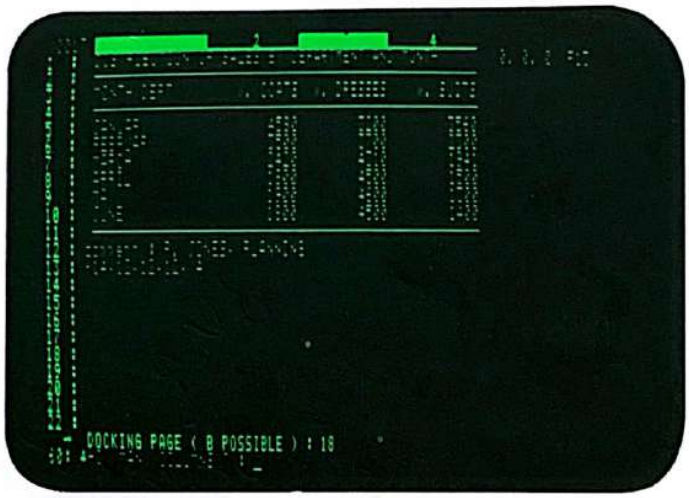
We're going to illustrate adding columns from a PAGE in the MASTER FILE to a TABLE in the MASTER BUFFER, specifying the order of the columns in the new TABLE by drawing from both the MASTER FILE and MASTER BUFFER. During this procedure PIPS also allows us to specify any arrangement we choose for the new TABLE.

THE TABLES FOR THIS EXAMPLE ARE NOT PROVIDED ON THE DISKETTE WHICH CAME WITH THIS GUIDE.

We are going to get Columns 2 and 3 of the table on PAGE 18 of the MASTER FILE and add them to the TABLE in the MASTER BUFFER.

20.6.1 Enter "CA" then, press "RETURN". To the "DOCKING, ARRANGE UP DATE ?" prompt, enter "D".

20.6.2 To the next prompt, enter "18", the number of the page in the MASTER FILE containing the columns we want to add to the table in the MASTER BUFFER.



This is the TABLE on PAGE 18:

```
1  : <PAGE 18>
2  :
3  : MONTH/DEPT          M. COATS    M.SUITS
4  :
5  : JANUARY                 1860       3250
6  : FEBRUARY                1940       2670
7  : MARCH                    800       1800
8  : APRIL                    600       3500
9  : MAY                      500       3800
10 : JUNE                     500       3500
11 :
12 : comment : P. JONES, PLANNING
13 : f14,12,12,/4
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

C A COLUMN ARRANGE: D BRANCH

20.6.3 PIPS will ask "HOW MANY COLUMNS ?". Here you enter the total number of columns for the new TABLE: The number of columns we will select from the MASTER BUFFER TABLE, and the number of columns we will select from the TABLE from the specified PAGE in the MASTER FILE.

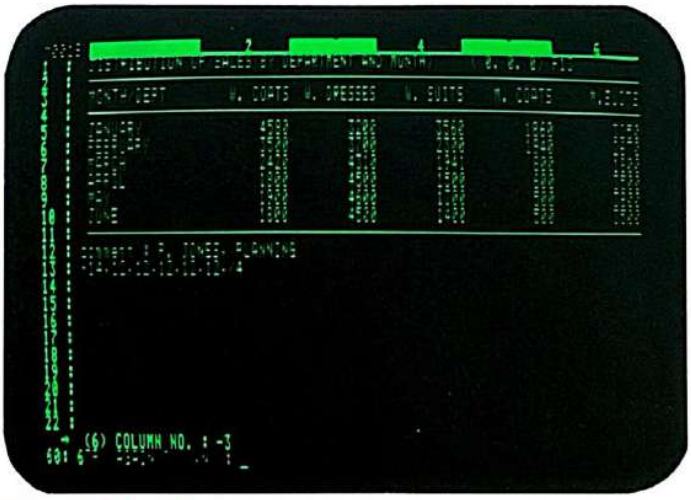
There are now 4 columns in the MASTER BUFFER and we are going to add 2 more columns from PAGE 18 in the MASTER FILE, giving us a total of 6. Enter "6" and press "RETURN".

20.6.4 PIPS is asking you for the order in which the column numbers from the TABLES in the MASTER BUFFER and MASTER FILE will be entered in the new TABLE.

To designate a column number in the TABLE on PAGE 1 of the MASTER FILE, our DOCKING PAGE, preface the number with a hyphen ("-"). Numbers with no hyphen are considered to be column numbers of the TABLE in the MASTER BUFFER.

Enter the columun numbers in the following order. Be sure to press "RETURN" after each entry:

1 2 3 4 -2 -3



NOTE: COLUMN NUMBERS, FROM EITHER THE MASTER BUFFER OR FROM THE PAGE IN THE MASTER FILE, CAN BE ENTERED IN ANY ORDER DESIRED. COLUMN DUPLICATIONS AND DELETIONS MAY ALSO BE CARRIED OUT.

20.6.5 A "Y" entry to the "TRY AGAIN ?" prompt takes you back to the "DOCKING, ARRANGE UP DATE ?" prompt, where you could start over. Enter "N" and PIPS will display the new TABLE and return to the COMMAND MODE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

C A COLUMN ARRANGE: D BRANCH

PROMPTS C A

```
* SELECT COMMAND = CA
DOCKING , ARRANGE , UP DATE ?     : D
DOCKING PAGE ( B POSSIBLE ) :
HOW MANY COLUMNS ? :
(1) COLUMN NO. :
:
:
TRY AGAIN ? (Y/N) : Y

DOCKING , ARRANGE , UP DATE ?     : D
DOCKING PAGE ( B POSSIBLE ) :
HOW MANY COLUMNS ? :
(1) COLUMN NO. :
:
:
TRY AGAIN ? (Y, N) : N
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF--- 56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST--- 170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD --- 285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

DRL DRAW LINE

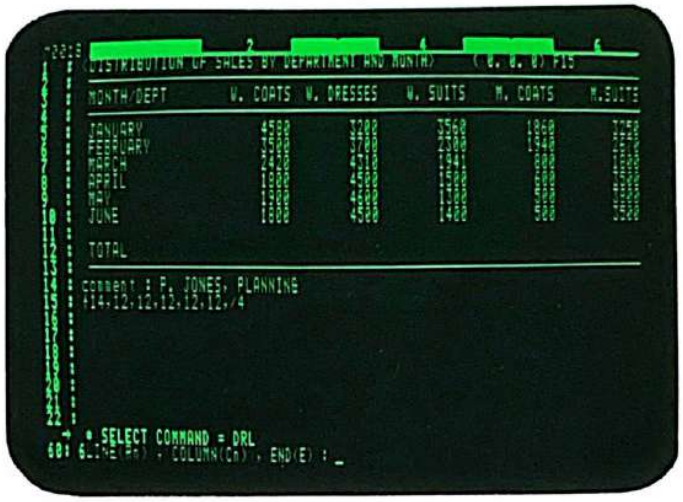
21.1 THE DRL COMMAND (Draw Line)

With the DRL Command, you can draw lines on a TABLE, making it easier to read.

21.2 DRAWING HORIZONTAL LINES

21.2.1 Enter "DRL".

We'll draw our first horizontal line in Line 11, so we enter "R11" to the first prompt.

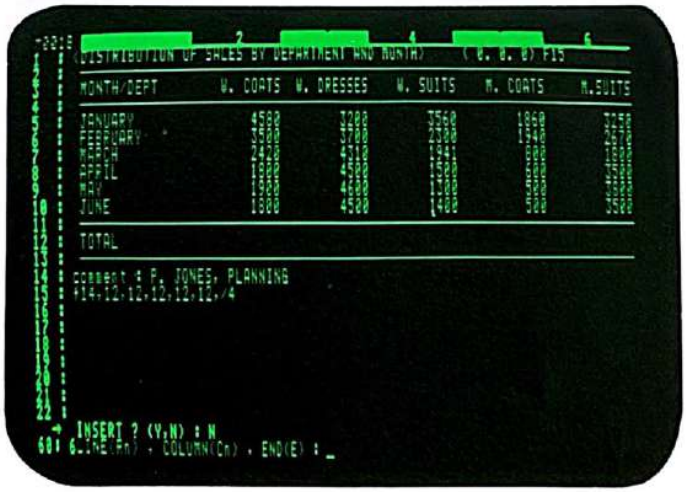


PIPS is asking you if you want to insert the line at Line 11 or write over any data which might be in that line.

NOTE: THE DRL COMMAND IS NOT AN UNDERLINE FUNCTION. IT WILL DRAW A LINE THROUGH EXISTING DATA AND ERASE IT FROM THE TABLE.

21.2.2 There is nothing in Line 11, so there is no reason to insert. Enter "N" then press "RETURN".

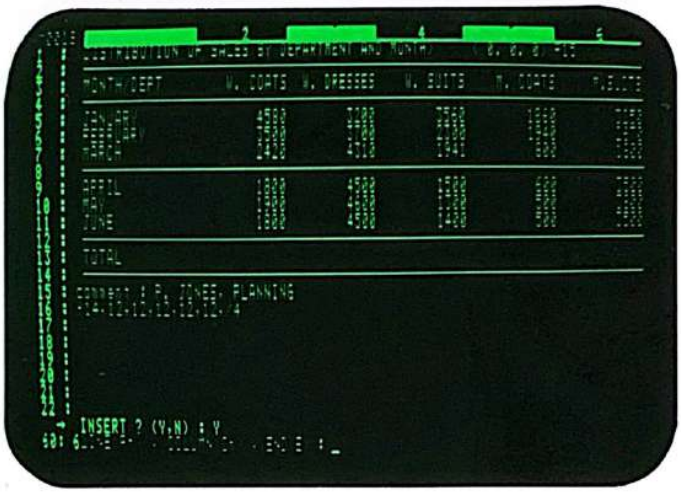
The "LINE(Rn), COLUMN(Cn), END(E):" prompt will appear so you can continue drawing lines.



ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

DRAW LINE D R L

21.2.3 We'll insert a line at Line 8, but because we have no more empty lines in the TABLE, we'll enter "Y" to the "INSERT" prompt.

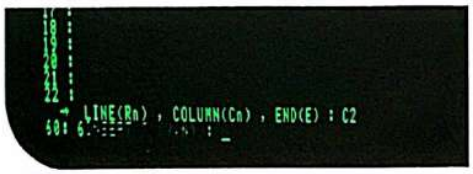


21.2.4 When no more lines are needed, simply enter "ESC", or "E" and "RETURN" to the "LINE, COLUMN, END" prompt. PIPS will return to the COMMAND MODE.

NOTE: TO DELETE A LINE YOU HAVE DRAWN, EXECUTE THE DL COMMAND.

21.3 DRAWING VERTICAL LINES

To draw vertical lines, respond to the "LINE, COLUMN, END" prompt with a "C" followed by the column number at which you are going to draw the line.



We'll draw a line between Columns 1 and 2.

21.3.1 To the "LINE, COLUMN, END" prompt, enter "C2".

NOTE: SPECIFY THE NUMBER OF THE COLUMN BEFORE WHICH YOU ARE GOING TO INSERT THE VERTICAL LINE.

NOTE: WHEN DRAWING HORIZONTAL LINES, YOU HAVE THE OPTION OF INSERTING BETWEEN OR WRITING OVER THE DATA IN THE LINE. HOWEVER, WHEN DRAWING VERTICAL LINES, ALWAYS RESPOND "Y" TO THE "INSERT" PROMPT. FAILURE TO MAKE THIS SPECIFICATION WILL RENDER ALL DATA IN THAT COLUMN NULL FOR CALCULATION PURPOSES.

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS - - -73
GF - - 247 | IL - - - - 77 | LF - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

D R L DRAW LINE

NOTE: EVERY TIME YOU INSERT A VERTICAL LINE, THE COLUMN NUMBERS IN THE TABLE WILL CHANGE BECAUSE THE LINE ITSELF WILL BE ASSIGNED A COLUMN NUMBER.

NOTE: TO ERASE VERTICAL LINES FROM THE TABLE, EXECUTE THE DC COMMAND, SPECIFYING THE COLUMN NUMBER OF THE VERTICAL LINE.

21.3.2 Enter "E", then press "RETURN" to return to the COMMAND MODE.

PROMPTS D R L

```
* SELECT COMMAND = DRL
LINE (Rn) , COLUMN (Rn) , END (E) :
INSERT ? (Y,N) : Y
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

VI. THE SUB BUFFER & SUB FILE

G ---- 26
GF -- 247
GR -- 119
IC-N--80
IC-Y---46
IL ---- 77
IN ---282
IR ---- 44
L ------91
LF----232
MAR--147
MAW--147
ML---54
MT ---15
NF --166
O ---- 9
P ----------23
PBACK----284
PF -------- 245
PROTECT---276
RF ---56
SB ----76
SET---89
SFN--203
SORT---157
ST ---170
TD ---285
TRM ---75
TRS---73
UPD--195
W ---37

SUB BUFFER & SUB FILE

22.1 THE SUB BUFFER

The SUB BUFFER is another area within WORKING STORAGE and is the same size as the MASTER BUFFER, 60 lines long and 150 characters wide.

Up to now, we have been working only with the MASTER BUFFER and the MASTER FILE. The SUB BUFFER can be used to store data temporarily to free the MASTER BUFFER for other operations.

Like the MASTER BUFFER, the SUB BUFFER is in WORKING STORAGE. When the power to your computer is turned off or interrupted, the contents of the SUB BUFFER and MASTER BUFFER are lost.

We will explain the various uses of the SUB BUFFER and its characteristics by describing the PIPS Commands which can be used in SUB BUFFER operations. For now, just keep in mind that there is another area in WORKING STORAGE quite similar to the MASTER BUFFER called the SUB BUFFER in which you can store data temporarily.

23.1 THE SUB FILE

The SUB FILE is an area in EXTERNAL STORAGE for the semi-permanent storage of data. The SUB FILE is located on the PPRO Diskette in Drive #0 of the DISK DRIVE UNIT.

The SUB FILE contains space for 10 PIPS PAGES. Each PAGE is 60 lines long and 150 characters wide. The size of these PAGES does not change, regardless of the PAGE size set for the PDATA Diskette during initialization.

G - - - - 26	IC-Y- - -46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT- - -157	TRS- - -73
GF - - 247	IL - - - - 77	LF- - - -232	MT - - - 15	PBACK- - - - 284	SB - - - -76	ST - - - 170	UPD- -195
GR - - 119	IN- - - 282	MAR- - 147	NF - - 166	PF - - - - - - - 245	SET- - -89	TD - - - 285	W - - - 37
IC-N- -80	IR - - - - 44	MAW- - 147	O - - - - 9	PROTECT- - -276	SFN- -203	TRM - - -75	

SUB BUFFER & SUB FILE

NOTE: THE PPRO DISKETTE CANNOT BE COPIED. YOU CANNOT MAKE A RESERVE COPY OF THE PAGES IN THE SUB FILE ON ANOTHER DISKETTE.

Think of the SUB FILE as a working file, the contents of which can be changed as frequently as needed.

You can copy PAGES into the SUB FILE from the MASTER BUFFER, or, copy them from the SUB FILE into the MASTER BUFFER by using a few simple P and G Commands.

Puts the contents of the MASTER BUFFER into PAGE 1 of the MASTER FILE.

Puts the contents of the MASTER BUFFER into PAGE 1 of the SUB FILE.

Gets PAGE 1 of the MASTER FILE into the MASTER BUFFER.

Gets PAGE 1 of the SUB FILE into the MASTER BUFFER.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---- 248

VII. MASTER BUFFER & SUB BUFFER OPERATIONS

TRANSFER MASTER BUFFER TO SUB BUFFER

SHOW SUB BUFFER

TRANSFER SUB BUFFER TO MASTER BUFFER

SWAP BUFFER

INSERT LINE

INSERT COLUMN: N BRANCH

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT--157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF --------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR ----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

T R S TRANSFER MASTER BUFFER TO SUB BUFFER

24.1 THE TRS COMMAND (Transfer MASTER BUFFER to SUB BUFFER)

Use the TRS Command to transfer the contents of the MASTER BUFFER to the SUB BUFFER.

NOTE: THE TABLES USED IN THIS AND THE NEXT THREE SECTIONS ARE PROVIDED ON PAGES 3 AND 4 OF THE DISKETTE PROVIDED WITH THIS GUIDE.

24.2 TRS COMMAND EXECUTION

24.2.1 Execute G. Get the NORTH SHOP TABLE on PAGE 3 into the MASTER BUFFER.

24.2.2 Execute "TRS".

PIPS will ask, "APPEND ? (Y,N)".

When there is data already in the SUB BUFFER which you want to keep, respond "Y". The contents of the MASTER BUFFER will copy into the SUB BUFFER, starting at the first empty line in the SUB BUFFER.

When there is data in the SUB BUFFER which you no longer need, enter "N". "N" tells PIPS you want to begin copying on the first line of the SUB BUFFER. This will write over anything which is in the SUB BUFFER.

24.2.3 There is nothing in the SUB BUFFER now, so enter "N".

NOTE: WHEN THE SUB BUFFER IS EMPTY, ENTERING "Y" WILL CAUSE THE "APPEND" PROMPT TO KEEP REAPPEARING UNTIL YOU ENTER "N".

The contents of the MASTER BUFFER have been copied into the SUB BUFFER, and the SUB BUFFER is displayed on the CRT.

NOTE: DISPLAYED IN THE UPPER LEFT-HAND CORNER YOU WILL SEE "S0003". THE "S" TELLS YOU THAT YOU ARE LOOKING AT THE CONTENTS OF THE SUB BUFFER.

24.2.4 PAGE 3 is now in the MASTER and SUB BUFFERS. Now get PAGE 4 in the MASTER BUFFER.

24.2.5 Go on to the next section.

PROMPTS T R S

```
* SELECT COMMAND = TRS
APPEND ? (Y,N) :
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

B S SHOW SUB BUFFER

25.1 THE BS COMMAND (Show Sub Buffer)

The BS Command displays the contents of the SUB BUFFER on the CRT. We will execute the BS Commmand to verify the location of our TABLE ("EMPLOYEES - NORTH SHOP) which you just copied to the SUB BUFFER with the TRS Command.

25.2 BS COMMAND EXECUTION

25.2.1 Execute "BS".

The NORTH SHOP TABLE will appear on the CRT.

In the upper left corner of the screen you will see "S0004". The initial "S" indicates that you are looking at the contents of the SUB BUFFER.

25.2.2 Execute the B Command.

The SOUTH SHOP TABLE will appear. "M0004" will be displayed in the upper left-hand corner, indicating that you are looking at the contents of the MASTER BUFFER.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU# --270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---- 248

TRANSFER SUB BUFFER TO MASTER BUFFER

T R M

26.1 THE TRM COMMAND (Transfer Sub Buffer to Master Buffer)

The TRM Command does just the opposite of the TRS Command. It copies the contents of the SUB BUFFER into the MASTER BUFFER. The meanings of the prompts and responses are the same as those for the TRS Command.

The SOUTH SHOP TABLE (PAGE 4) should now be in the MASTER BUFFER. Let's get the NORTH SHOP (TABLE 3) in the SUB BUFFER back into the MASTER BUFFER.

26.2 TRM COMMAND EXECUTION

26.2.1 Execute "TRM".

26.2.2 To the "APPEND ? (Y,N)" enter "Y", then press "RETURN". We're going to append the NORTH SHOP TABLE to the SOUTH SHOP TABLE in the MASTER BUFFER. An "N" response here would write over your TABLE in the MASTER BUFFER.

The NORTH SHOP TABLE has been transferred from the SUB BUFFER and appended to the SOUTH SHOP TABLE in the MASTER BUFFER.

26.2.3 Clear both BUFFERS before going on to the next section. Execute the following:

```
O  RETURN
ESC
TRS  RETURN
N  RETURN
```

PROMPTS T R M

```
* SELECT COMMAND = TRM
APPEND ? (Y,N) :
* SELECT COMMAND =
```


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

S B SWAP BUFFER

27.1 THE SB COMMAND (Swap Buffer)

The SB Command exchanges the contents of the MASTER BUFFER and the SUB BUFFER.

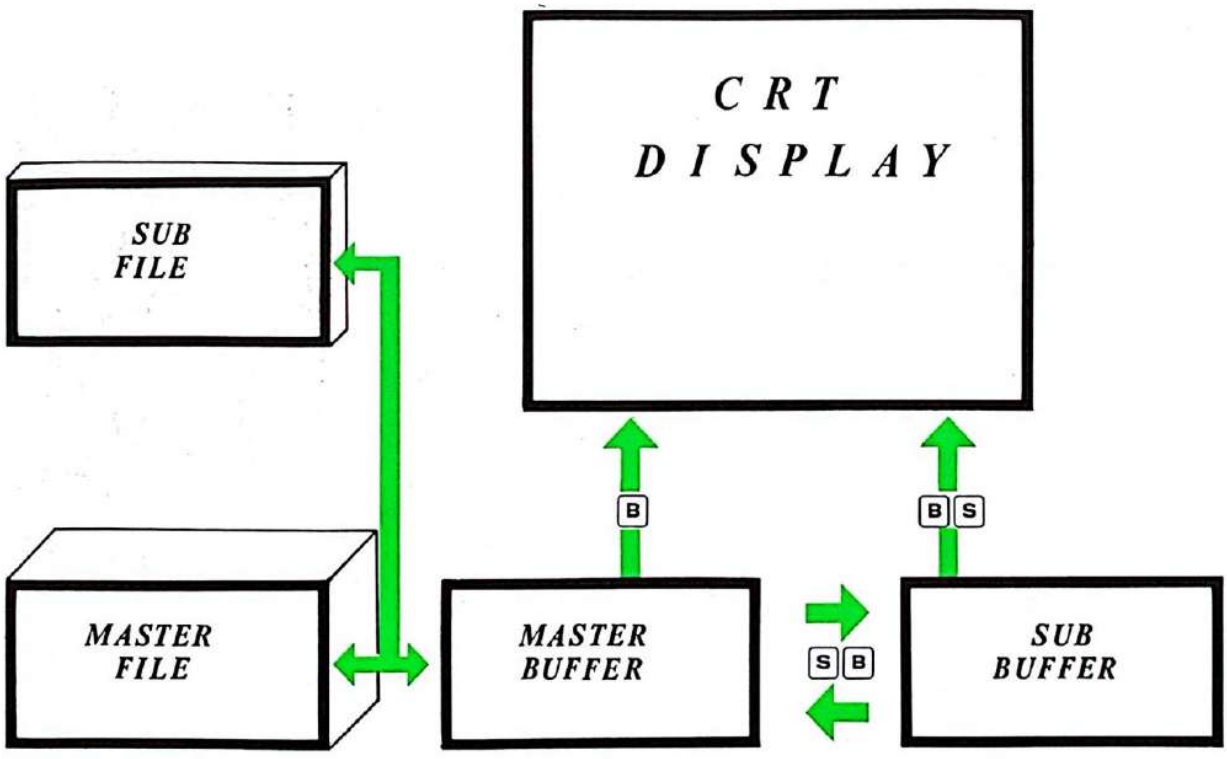
Before we explain the SB Command, get PAGE 3 into the MASTER BUFFER, then execute TRS. Get PAGE 4 into the MASTER BUFFER. PAGE 3 is now in the SUB BUFFER and PAGE 4 in the MASTER BUFFER.

27.2 SB COMMAND EXECUTION

27.2.1 Enter "SB", then press "RETURN".

TABLE 3 is now in the MASTER BUFFER and PAGE 4 (SOUTH SHOP) is in the SUB BUFFER. The BUFFERS have exchanged their contents.

27.2.2 Execute the BS Command to confirm that the SOUTH SHOP is now in the SUB BUFFER.



ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT ------- 41	DL---- 49	END --- 4
AS ---267	BS ---- 74	CA-U --214	CM --275	CTRL ----237	DRL---64	F----- 97
AU*--270	BT ---- 21	CAL---- 97	COL--87	D ------- 97	ED---223	FO ---110
B---- 33	CA-A --209	CC ----- 42	CS---185	DC ------ 53	EF---226	FT----248

INSERT LINE I L

28.1 THE IL COMMAND (Insert Line)

The IL Command inserts one or more lines from a TABLE in the SUB BUFFER into a TABLE in the MASTER BUFFER. This is another way to combine data from various TABLES into one TABLE.

NOTE: THE IL COMMAND CAN BE EXECUTED ONLY ON FORMATTED PAGES.

To illustrate the execution of the IL Command, we are going to combine the NORTH and SOUTH SHOP TABLES into one TABLE.

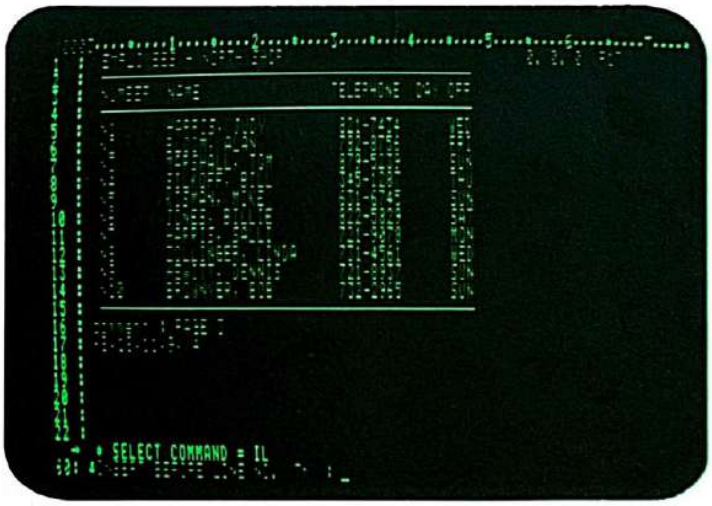
28.2 IL COMMAND EXECUTION

28.2.1 We'll take lines from the "SOUTH SHOP TABLE" on PAGE 4 and put them into the "NORTH SHOP TABLE" on PAGE 3. Get PAGE 4 (SOUTH SHOP) into the MASTER BUFFER. This is the TABLE from which we are going to take the lines for insertion into the NORTH SHOP TABLE.

28.2.2 Transfer the SOUTH SHOP TABLE (now in the MASTER BUFFER) to the SUB BUFFER.

28.2.3 Get PAGE 3 into the MASTER BUFFER. This is the TABLE into which we are going to insert the lines from PAGE 4.

28.2.4 Enter "IL", then press "RETURN".



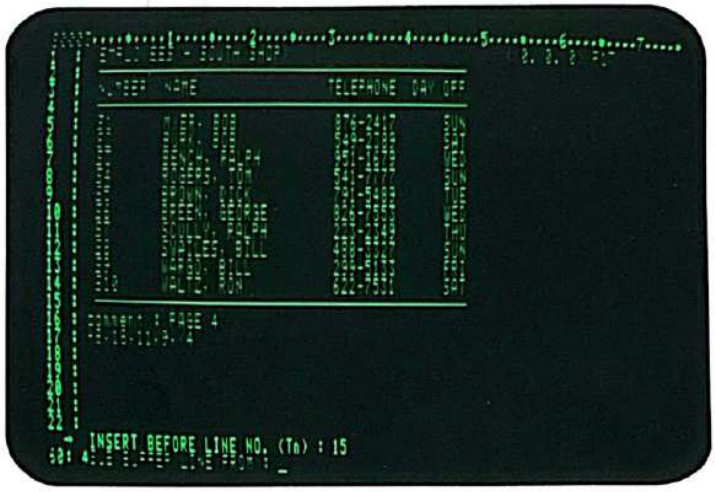
G - - - - 26 | IC-Y- - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN - - - 282 | MAR- - -147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- - 203 | TRM - - - 75 |

I L INSERT LINE

28.2.5 Enter the line number in the MASTER BUFFER before which you want to insert lines.

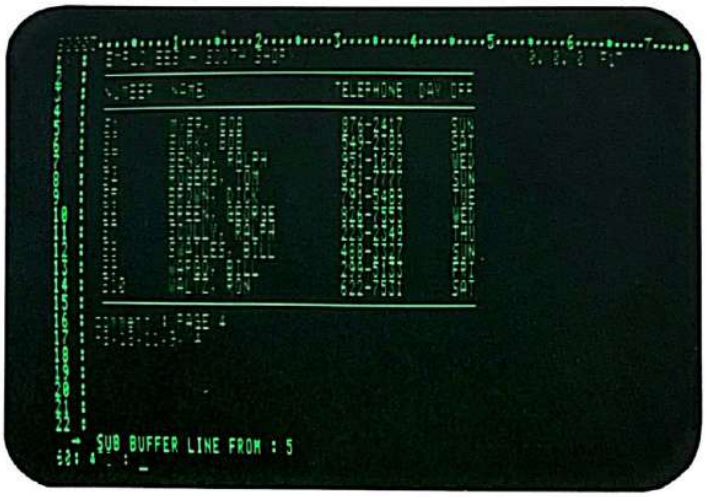
The contents of the SUB BUFFER (PAGE 4) will automatically be displayed on the screen so you can more easily determine FROM WHAT LINE you want to insert the lines.

PIPS will ask the beginning line number of the TABLE in the SUB BUFFER which you want to insert in the TABLE in the MASTER BUFFER.



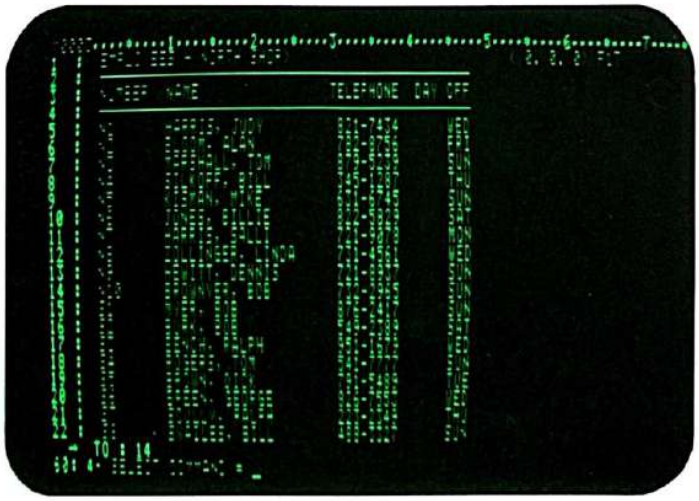
28.2.6 Enter "5" then press "RETURN"

PIPS will ask the ending line number of the TABLE in the SUB BUFFER which you want to insert into the MASTER BUFFER.



28.2.7 Enter "14" then press "RETURN".

The lines will then be inserted into the TABLE in the MASTER BUFFER, beginning at the line specified in 28.2.5, above. The new TABLE will be displayed on the CRT.



ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

INSERT LINE I L

NOTE: THE FORMAT FOR THE PAGES IN THE SUB BUFFER AND THE MASTER BUFFER MUST BE THE SAME. IF THEY NOT, THE FORMAT OF THE PAGE IN THE MASTER BUFFER WILL PREVAIL.

NOTE: IN OUR EXAMPLE, WE INSERTED THE SUB BUFFER LINES AT THE END OF THE TABLE IN THE MASTER BUFFER. ANY LINE IN THE TABLE MAY BE SPECIFIED.

PROMPTS I L

```
* SELECT COMMAND = IL
INSERT BEFORE LINE NO. (Tn) :
SUB BUFFER LINE FROM :
TO :
* SELECT COMMAND =
```


G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT--157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

IC INSERT COLUMN: N BRANCH

29.1 THE IC COMMAND: "N" BRANCH

The "Y" Branch of the IC Command was explained earlier in 14.1-14.3. In this section the "N" Branch of the IC Command will be explained.

The "N" Branch of the IC Command allows you to take columns from a TABLE in the MASTER BUFFER and insert them into another TABLE in the SUB BUFFER.

TABLES HAVE NOT BEEN PROVIDED FOR THE EXPLANATION BELOW. IF YOU WANT TO WORK THROUGH THIS SECTION AS A PRACTICAL EXERCISE, EXECUTE THE FOLLOWING PROCEDURES SO YOU'LL HAVE THE CORRECT TABLES AND PAGE NUMBERS TO WORK WITH:

G;2
Execute DC. Delete Columns 5 and 6.
P;20

G;2
Execute DC. Delete Columns 2,3 and 4.
P;21

<DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>

MONTH/DEPT	W. COATS	W. DRESSES	W. SUITS
JANUARY	4580	3200	3560
FEBRUARY	3500	3700	2300
MARCH	2420	4310	1941
APRIL	1800	4500	1500
MAY	1900	4600	1300
JUNE	1800	4500	1400

PAGE 20

<DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>

MONTH/DEPT	M. COATS	M. SUITS
JANUARY	1860	3250
FEBRUARY	1940	2670
MARCH	800	1800
APRIL	600	3500
MAY	500	3800
JUNE	500	3500

PAGE 21

29.2 "N" BRANCH EXECUTION

29.2.1 Get PAGE 20 into the MASTER BUFFER.

29.2.2 Execute "TRS".

29.2.3 Enter "N" and press "RETURN"/

PAGE 20 is now in the SUB BUFFER, and displayed on the CRT.

29.2.4 Get PAGE 21 of the MASTER FILE into the MASTER BUFFER.

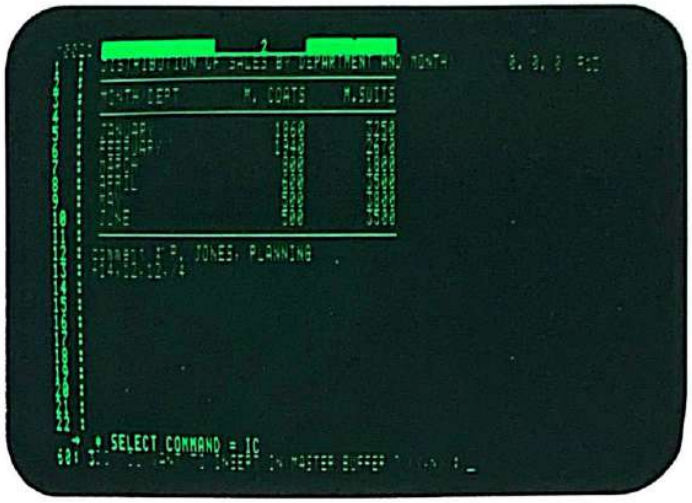
This is the data we are going to insert into the TABLE in the SUB BUFFER.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

INSERT COLUMN: N BRANCH

I C

29.2.5 Enter "IC" then press "RETURN".

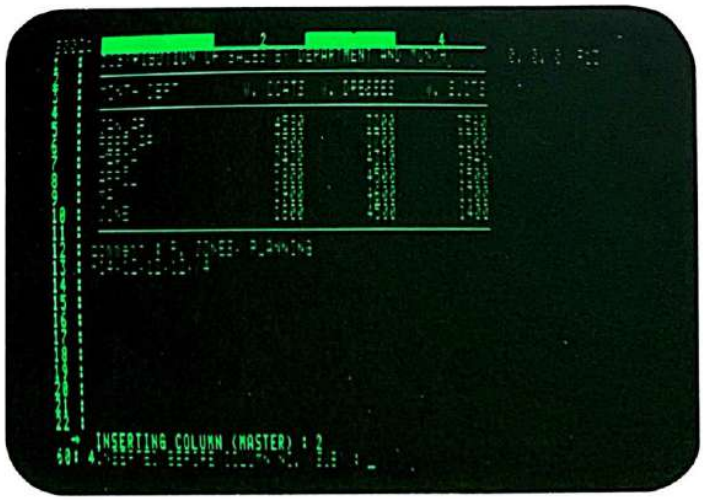


29.2.6 Enter "N" and press "RETURN".

PIPS is asking you which column from the TABLE in the MASTER BUFFER you are going to insert in the TABLE in the SUB BUFFER. We're going to insert "M.COATS" (Column 2) into the TABLE in the SUB BUFFER.

29.2.7 Enter "2", press "RETURN".

The SUB BUFFER will be displayed automatically on the CRT to aid in determining where the column specified is to be inserted.



G - - - - 26 | IC-Y- - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN - - - 282 | MAR- - 147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- -203 | TRM - - - 75

I C INSERT COLUMN: N BRANCH

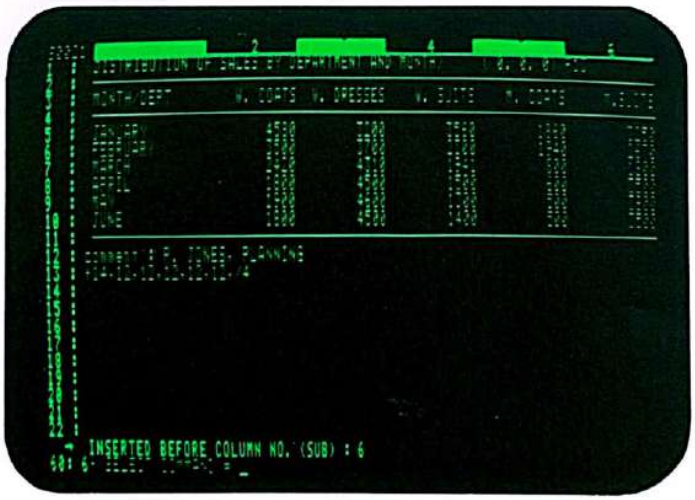
NOTE: ANY TIME DURING THIS PROCEDURE, YOU MAY EXECUTE THE B COMMAND TO DISPLAY THE MASTER BUFFER CONTENTS, OR EXECUTE THE BS COMMAND TO DISPLAY THE SUB BUFFER CONTENTS.

PIPS is asking for the number of the column in the SUB BUFFER before which you want to insert the column from the MASTER BUFFER.

29.2.8 Insert "M.COATS" (Column 2) at the end of the TABLE, before Column 5. Enter "5" and press "RETURN".

The column will be inserted into the specified column in the SUB BUFFER, and PIPS will return to the COMMAND MODE.

29.2.9 Using the above procedures, insert "M.SUITS" (Column 3) of the MASTER BUFFER as the last column, following "M.COATS". Once again, we'll append the column at the end of the TABLE.



NOTE: THIS ALL TAKES PLACE IN THE SUB BUFFER. IF YOU WANT TO MAKE A PERMANENT RECORD OF THE NEW TABLE, EXECUTE THE TRM COMMAND, THEN COPY THE NEW TABLE TO A PAGE IN THE MASTER FILE USING THE P COMMAND.

THE P COMMAND COPIES ONLY THE CONTENTS OF THE MASTER BUFFER, REGARDLESS OF WHAT IS BEING DISPLAYED ON THE CRT. KEEP THIS IN MIND WHEN USING THE SUB BUFFER.

ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT -------- 41	DL---- 49	END --- 4
AS ---267	BS ----74	CA-U -- 214	CM -- 275	CTRL ----237	DRL---64	F----- 97
AU#--270	BT----21	CAL---- 97	COL -- 87	D -------- 97	ED---223	FO ---110
B ---- 33	CA-A -- 209	CC -----42	CS---185	DC------ 53	EF---226	FT----248

INSERT COLUMN: N BRANCH I C

PROMPTS I C

```
* SELECT COMMAND = IC
DO YOU WANT TO INSERT IN MASTER BUFFER ? BUFFER ? (Y/N) : N
INSERTING COLUMN (MASTER):
INSERTED BEFORE COLUMN NO. (SUB):
* SELECT COMMAND =
```


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - -157 | TRS - - -73
GF - - 247 | IL - - - - 77 | LF - - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD - -195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

VIII. THE COL, SET AND L COMMANDS

COLOR

SET

LIST

G - - - - 26
GF - - 247
GR - - 119
IC-N - -80
IC-Y - - -46
IL - - - - 77
IN - - -282
IR - - - - 44
L - - - - - - 91
LF - - - -232
MAR - - 147
MAW - - 147
ML - - - 54
MT - - - 15
NF - - 166
O - - - - 9
P - - - - - - - - - - 23
PBACK - - - - 284
PF - - - - - - - - 245
PROTECT - - - 276
RF - - - 56
SB - - - - 76
SET - - - 89
SFN - - 203
SORT - - -157
ST - - - 170
TD - - - 285
TRM - - - 75
TRS - - - 73
UPD - - 195
W - - - - 37

COLOR C O L

30.1 THE COL COMMAND (Color)

Use the COL Command to assign colors to specified rows, columns or matrix positions in a TABLE.

The COL Command is extremely simple to execute. Use it to make TABLES on the CRT easier to read.

30.2 COL COMMAND EXECUTION

30.2.1 Enter "COL".

PIPS is asking if you want to register (R) a new color specification on the TABLE or clear (C) all color specifications which have been made on the TABLE.

30.2.2 Enter "R" to register a new color specification.

Enter "C" and press "RETURN" to clear previous color specifications.

PIPS is asking for a BACK COLOR specification. "BACK COLOR" is the background color the entire screen will take after you enter a color code.

COLOR CODES:

0 : BLACK	4 : BLUE
1 : RED	5 : MAGENTA
2 : GREEN	6 : CYANIC
3 : YELLOW	7 : WHITE

30.2.3 Press "RETURN" without making entry and the back color will remain as it is, or enter a number to specify any color you may choose from the list under 30.2.2.

RETURN

PIPS is asking for the color specifications for the TABLE on the screen. Matrix positions, single lines or columns, or blocks of lines or columns can be specified.

SAMPLE FORMATS:

(1) R5,7,1: Specifies 1 (RED) for lines 5 through 7.

(2) R5,5,1: Specifies 1 (RED) for Line 5 only.

(3) C1,1,4: Specifies 4 (BLUE) for Column 1 only.

(4) C1,3,4: Specifies BLUE (4) for Columns 1-3.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

(5) M6,4,4: Specifies BLUE (4) for the data position at Line 6, Column 4.

30.2.4 Press "ESC" to return to the COMMAND MODE.

NOTE: WHEN A PAGE IS COPIED INTO THE MASTER BUFFER, THE TABLE ON THAT PAGE WILL REFLECT WHATEVER COLOR SPECIFICATIONS WERE IN EFFECT WHEN IT WAS COPIED TO THE FILE. IF YOU WANT TO RETAIN THE SPECIFICATIONS YOU HAVE MADE IN A TABLE IN THE MASTER BUFFER, BE CERTAIN TO COPY THE TABLE TO THE MASTER FILE WITH THE P COMMAND.

NOTE: COLOR SPECIFICATIONS CAN BE MADE ONLY FOR THE TABLE DISPLAYED IN THE MASTER BUFFER; COLORS MAY NOT BE SPECIFIED FOR TABLES IN THE SUB BUFFER.

PROMPTS C O L

```
* SELECT COMMAND = COL
REGISTER OR CLEAR ? (R,C) : R
BACK COLOR :
SET COLOR :
```

ESC

```
* SELECT COMMAND =  COL
REGISTER OR CLEAR ? (R,C) : C
REGISTER OR CLEAR ? (R,C) :
```

ESC

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F------97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

SET

31.1 THE SET COMMAND

The SET Command allows you to assign certain attributes to the screen display and printer. The SET Command may be executed any time PIPS is in the COMMAND MODE.

In this section, we will describe screen attribute assignments only; printer attributes will be covered in the next section of this guide.

31.2 SET COMMAND EXECUTION

31.2.1 Enter "SET". Press "RETURN"

The lower left of your screen will display "SET". You now have the following options:

(1) PROMPTS AND MESSAGES IN JAPANESE — MSG=J

(2) PROMPTS AND MESSAGES IN ENGLISH — MSG=E

(3) A "BEEP" SOUNDS EACH TIME A KEY IS PRESSED — BELL=ON

(4) NO SOUND EMITTED WHEN KEYS ARE PRESSED — BELL=OFF

(5) CRT DISPLAYS 20 LINES ON SCREEN — L=20

(6) CRT DISPLAYS 25 LINES ON SCREEN — L=25

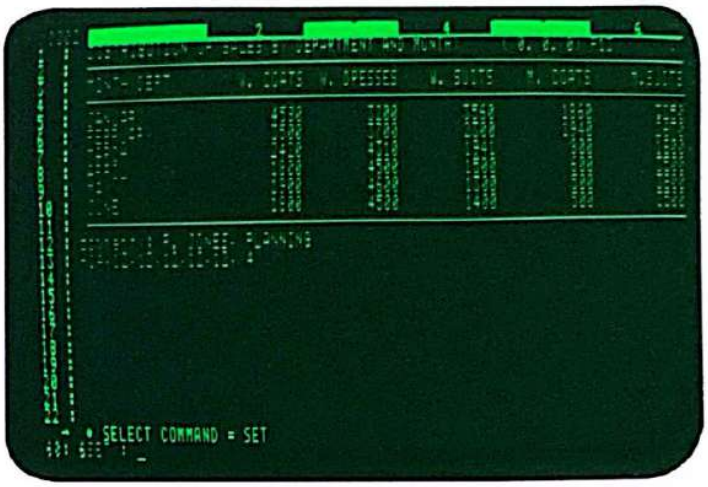
(7) THE NUMBER OF LINES AT THE TOP OF THE SCREEN WHICH REMAIN STATIONARY DURING SCROLLING — HEAD=

(8) THE NUMBER OF COLUMNS WHICH WILL REMAIN DISPLAYED TO THE LEFT OF THE SCREEN WHEN SCROLLING — HEAD=/

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF---232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

SET

31.2.2 For instance to increase the spacing between lines in the table we'll specify "L=20" to the "SET" prompt.



NOTE: IF THE SET COMMAND IS NOT EXECUTED, THE FOLLOWING ATTRIBUTES WILL PREVAIL:

(1) Prompts, messages in English.

(2) No sound emitted when keys pressed.

(3) CRT displays 25 lines on screen.

(4) No lines remain at top of screen when scrolling.

(5) No columns remain at left of screen when scrolling.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ----74 | CA-U -- 214 | CM -- 275 | CTRL ----237 | DRL --- 64 | F ------ 97
AU*--270 | BT ----21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ------42 | CS ---185 | DC ------- 53 | EF ---226 | FT ----248

32.1 THE L COMMAND (List)

With the L Command we can make a written record (hard copy) of TABLES, graphs, etc. on the printer.

32.2 SETTING UP THE PRINTER

Messages can be sent to the printer, telling it how to print hard copies. This is done by executing the SET Command prior to execution of the L Command. Printer settings can be specified any time PIPS is in the COMMAND MODE.

Enter "SET". Press "RETURN", then enter the appropriate code:

INSTRUCTION	CODE	
	SLP80 PRINTER	SLP160 PRINTER
CONDENSED CHARACTER	PRT=/16 (132 CH.PER LINE)	PRT=/16 (162 CH.PER LINE)
CANCEL CONDENSED CHARACTER INSTR	PRT=/15 *(80 CH.PER LINE)	PRT=/15 *(136 CH.PER LINE)
EXPANDED CHARACTER	PRT=/0E (40 CH.PER LINE)	PRT=/0E (68 CH.PER LINE)
CANCEL EXPANDED CHARCTER INSTR	PRT=/0F *(80 CH.PER LINE)	PRT=/0F *(136 CH.PER LINE)
HALF PAGE MODE	PRT=/1F4321 (33 LINES/PAGE)	PRT=/1F4321 (33 LINES/PAGE)
RETURN TO FULL PAGE MODE	PRT=/1F4342 *(66 LINES/PAGE)	PRT=/1F4342 *(66 LINES/PAGE)
CONDENSE LINE SPACE	PRT=/1F4107	PRT=/1F4108
RETURN TO NORMAL SPACING	PRT=/1F410C *	PRT=/1F410C *

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

L LIST

32.3 L COMMAND EXECUTION

Many options are still possible, even after making specifications in the SET Command.

32.3.1 Execute.

32.3.2 PIPS displays a menu from which to choose what is to be printed out and how.

(1) PAGE specifications

(a) To specify a single PAGE for printing, enter the PAGE number and press "RETURN". [2] [0] [RETURN]

(b) To specify a block of consecutive PAGES, enter the starting and ending PAGE numbers, separated by a comma ",". [3] [,] [9] [RETURN]

(c) To print PAGES previously specified using the SFN Command, enter "C" and press "RETURN". (Refer to the section of this guide explaining the SFN Command.) [C] [RETURN]

(d) To print page 1 of the SUB FILE. [S] [1]

(2) BUFFER specifications

(a) To print MASTER BUFFER contents: [B] [RETURN]

(b) To print SUB BUFFER contents: [S] [RETURN]

(c) To print the FIGURE BUFFER: [F] [RETURN]

(3) TITLE specifications

(a) If "T" is entered above, another prompt will appear. PIPS is asking if you want to print the MASTER FILE, SUB FILE or AUTOMATIC PROGRAM titles. [T] [RETURN]

(b) To do this make any one of the following specifications:

MASTER FILE TITLES: [M] [RETURN]

SUB FILE TITLES: [S] [RETURN]

AUTOMATIC PROGRAM TITLES: [A] [RETURN]

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

(4) DEFAULT

Enter "D" to go on and set line spacing, print line numbers, or set the paper advance.

Here the printing format can be set.

(a) LINE SPACING: Enter a "Y" for double spacing or an "N" for single spacing.

(b) LINE NUMBERING: Enter a "Y" to print line numbers. Enter "N" when line numbers are not to be printed.

(c) PRINTING LINE NUMBERS (Inclusive)

From line...

To line...

(d) PAPER ADVANCE: To specify automatic advance to the next page after printing, enter "Y". With an "N" specification, the paper will not advance.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

L LIST

PROMPTS L

```
* SELECT COMMAND = L
PAGE (WITH(,),C) , BUFFER(B,S,F) , TITLE(T) , DEFAULT(D) :

                                          12   (PAGE 12 prints)
                                          5,18 (PAGES 5 through 18 print)
                                          C    (PAGES specified with the
                                                SFN Command print)
```

```
* SELECT COMMAND = L
PAGE (WITH (,), C), BUFFER(B,S,F) , TITLE(T) , DEFAULT(D) :

                                          B (MASTER BUFFER prints)
                                          S (SUB BUFFER prints)
                                          F (FIGURE BUFFER prints)
```

```
* SELECT COMMAND = L
PAGE (WITH(,),C) , BUFFER (B,S,F) , TITLE(T) , DEFAULT(D) : T
MASTER , SUB OR AUTO ? (M,S,A) : M (MASTER BUFFER prints)
                                 S (SUB BUFFER prints)
                                 A (AUTOMATIC PROGRAM CATALOGUE prints)
```

```
* SELECT COMMAND = L
PAGE (WITH(,),C) , BUFFER (B,S,F) , TITLE(T) , DEFAULT (D) : D
INTERVAL ? (Y,N) :
NUMBERING ? (Y,N) :
LIST FROM ROW NO. :
LIST TO ROW NO. :
PAPER FEED ? (Y,N) :
* SELECT COMMAND =
```


ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT ------- 41	DL ---- 49	END --- 4
AS ---267	BS ---- 74	CA-U -- 214	CM -- 275	CTRL ---- 237	DRL --- 64	F ----- 97
AU#--270	BT ---- 21	CAL ---- 97	COL -- 87	D ------- 97	ED ---223	FO --- 110
B ---- 33	CA-A -- 209	CC ----- 42	CS ---185	DC ------ 53	EF ---226	FT ---248

IX. CALCULATIONS (Part 1)

G - - - - 26
GF - - 247
GR - - 119
IC-N - - 80
IC-Y - - - 46
IL - - - - 77
IN - - - 282
IR - - - - 44
L - - - - - - 91
LF - - - - 232
MAR - - 147
MAW - - 147
ML - - - 54
MT - - - 15
NF - - 166
O - - - - 9
P - - - - - - - - - - 23
PBACK - - - - 284
PF - - - - - - - 245
PROTECT - - - 276
RF - - - 56
SB - - - - 76
SET - - - 89
SFN - - 203
SORT - - - 157
ST - - - 170
TD - - - 285
TRM - - - 75
TRS - - - 73
UPD - - 195
W - - - 37

CALCULATION C A L

33.1 THE CAL COMMAND (Calculation)

Execution of the CAL Command gives you access to the many arithmetic functions provided by PIPS.

Because of the versatility of the CAL Command, the explanations are divided into several sections.

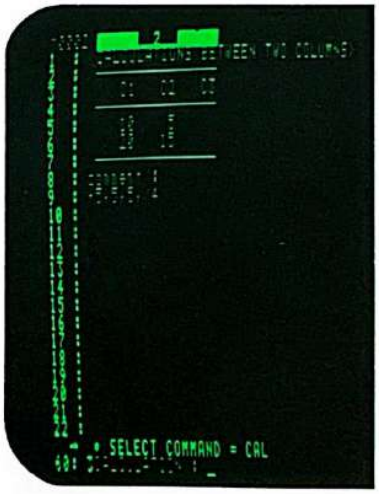
In this section, we will explain how to determine the FORMAT for calculation results, and how to do simple calculations on data in a TABLE.

33.2 THE D AND F COMMANDS

The D and F Commands are "sub" commands in that they can be executed only in the CALCULATION MODE.

The D Command specifies how the results of calculations will be rounded and how many digits will be displayed to the right of the decimal point.

The F Command lets you specify whether or not the results of calculations will be grouped into thousands, millions, etc. with commas.



33.3 CAL COMMAND EXECUTION

33.3.1 With any TABLE containing data in the MASTER BUFFER, enter CAL and press "RETURN".

NOTE: THE CAL COMMAND WILL NOT BE ACCEPTED BY PIPS UNLESS THERE IS A TABLE CONTAINING DATA IN THE MASTER BUFFER.

33.3.2 To "SELECT COMMAND=", enter "CAL".

33.3.3 The numerical format for displaying calculation results may be changed with the D Command any time PIPS is in the CALCULATION MODE.

Specifications are made by entering "D" and two numbers separated by a decimal point:

D1.1

The number to the left of the decimal point determines how calculation results will be rounded, based on the following codes:

0 = TRUNCATE, ROUND DOWN TO THE NEXT LOWER INTEGER

1 = ROUND OFF TO THE NEAREST INTEGER

2 = ROUND UP TO THE NEXT HIGHER INTEGER

The second number specifies the number of digits that will appear to the right of the decimal point, minus one.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

NOTE: WHEN NO SPECIFICATION IS MADE, "D1.1" APPLIES, THAT IS, NUMBERS WILL BE ROUNDED OFF TO THE NEAREST INTEGER, NO DECIMALS DISPLAYED.

33.3.4 To specify that your calculation results be displayed with commas inserted, enter

F,

then press "RETURN". You may cancel this specification at any time by entering

F

(without the comma) and pressing "RETURN".

NOTE: WHEN NO SPECIFICATION IS MADE, CALCULATION RESULTS WILL BE WRITTEN WITHOUT COMMAS.

SINCE PIPS ASKS "CALCULATION :" BEFORE THE START OF EACH NEW OPERATION, "D" OR "F", "F1" MAY BE SPECIFIED AT ANY TIME.

33.4 ARITHMETIC BETWEEN 2 COLUMNS IN A TABLE IN THE MASTER BUFFER

33.4.1 To perform an arithmetic operation between two columns in a TABLE in the MASTER BUFFER, enter:

(1) A "C" followed by the number of the first column,

(2) Sign for the type of calculation,

(3) "C" followed by the number of the second column,

(4) an equal sign,

(5) and a "C" followed by the number of the column where the results are to be written.

NOTE: BEFORE DESIGNATING A COLUMN IN (5) ABOVE, BE SURE THE COLUMN FORMAT IS WIDE ENOUGH TO RECEIVE THE RESULTS. TO WIDEN COLUMN FORMAT, EXECUTE "CF".

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

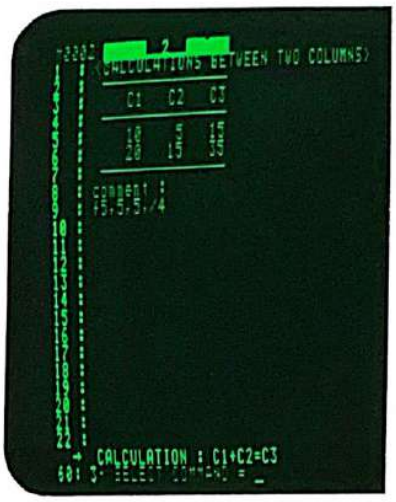
NOTE: IN (2) ABOVE, FOUR OPERATIONS ARE POSSIBLE:

+ ADDITION

- SUBTRACTION

* MULTIPLICATION

/ DIVISION



Enter the following, and press RETURN.

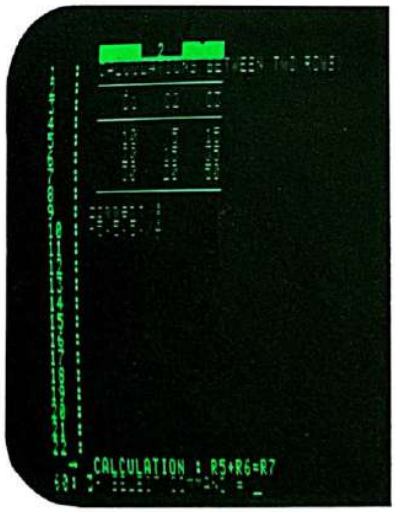
C1+C2=C3

After "RETURN" is pressed, the indicated operation is applied to the values in the columns specified, and the result is written in the column specified on the right of the "=" sign.

33.5 ARITHMETIC BETWEEN TWO LINES IN A TABLE IN THE MASTER BUFFER

The CAL Command also allows you to do calculations between rows (lines).

33.5.1 To the "SELECT COMMAND :" prompt, enter "CAL".



33.5.2 Enter: "R" followed by the number of the first row of the calculation, the sign for the type of calculation, an "R" followed by the number of the second row of the calculation, an equal sign, and an "R" with the number of the row where the calculation results are to be written.

R5+R6=R7

After pressing "RETURN", the calculations are performed, and the results written in the line specified to the right of the "=" sign.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

CAL CALCULATION

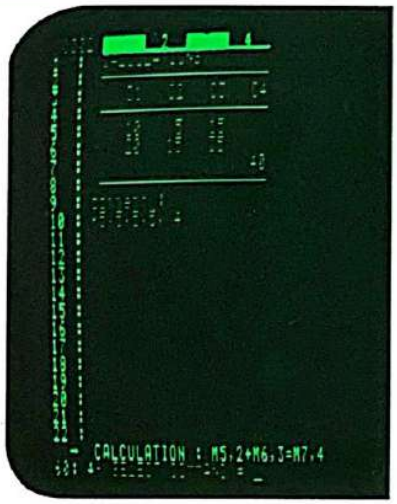
33.6 MATRIX ARITMETIC

Arithmetic between two values in positions specified by line and column numbers (the MATRIX specification) can also be performed using the CAL Command.

33.6.1 Enter "CAL".

33.6.2 We're going to take the value located at Line 5, Column 2 (5) and add it to the value at Line 6, Column 3 (35), then we'll write the results at Line 7, Column 4.

Enter "M5,2+M6,3=M7,4



NOTE: "M" DESIGNATES A MATRIX POSITION, JUST AS "C" DESIGNATED "COLUMN" AND "R" INDICATED "ROW" IN PREVIOUS CALCULATIONS. THE FIRST NUMBER AFTER "M" IS ALWAYS A LINE NUMBER FOLLOWED BY A COMMA. THE SECOND NUMBER IS ALWAYS A COLUMN NUMBER.

After "RETURN" is pressed, the results are written in the MATRIX position we designated to the right of the "=" sign.

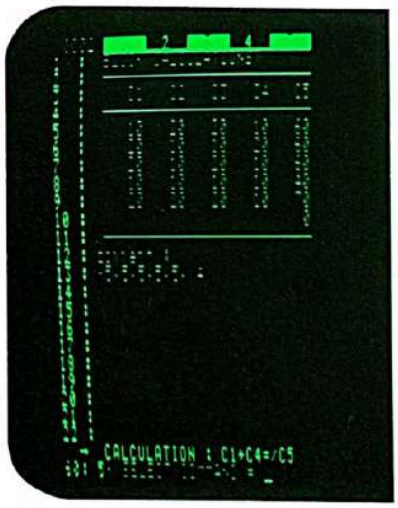
33.7 ARITHMETIC ON BLOCKS OF LINES OR COLUMNS

Using the CAL Command, you can also perform arithmetic operations on blocks of lines or columns. Get the sample TABLE on PAGE 9 into the MASTER BUFFER.

33.7.1 Enter "CAL". When PIPS asks, "CALCULATION:", enter "C1+C4=/C5".

The values in Column 1 and Column 4, AND IN ALL COLUMNS BETWEEN, have been added and the results written in Column 5.

The slash mark, "/", written to the immediate right of the "=" sign, tells PIPS to perform the specified operation on the values written into the formula AND ALL VALUES IN BETWEEN.



ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

33.7.2 Enter "CAL", press "RETURN", then enter

R5+R9=/R10

The values in Line 5 and Line 9, and all values in between (Lines 6-8) have been added and the results written in Line 10.

NOTE: ENTER "T" INSTEAD OF THE SECOND LINE NUMBER: "R5+RT=/R10". "T" AUTOMATICALLY TELLS PIPS TO CARRY OUT THE ARITHMETIC OPERATION FROM "R5" TO AND INCLUDING THE LAST LINE IN THE TABLE. BY ENTERING "T-1" OR "T-2", YOU CAN SPECIFY THE NEXT TO THE LAST LINE, THE THIRD TO THE LAST LINE, ETC.

IN A SIMILAR MANNER THE "T" FUNCTION MAY ALSO BE USED TO INDICATE THE LAST, NEXT TO LAST, ETC. COLUMN IN A TABLE.

COMPARE: C1+CT=/C5. ADDITION WILL BE CARRIED OUT ON ALL COLUMNS FROM AND INCLUDING C2, TO AND INCLUDING THE LAST COLUMN IN THE TABLE.

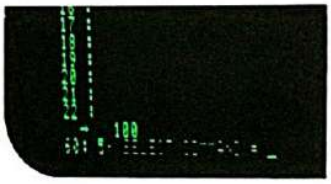
33.8 ELECTRONIC SCRATCH PAD

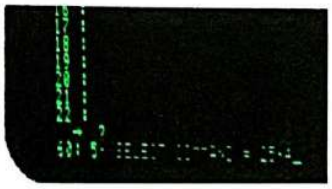
PIPS can also be used for calculations without entering a command.

33.8.1 When PIPS is in the COMMAND MODE, simply enter the values and the operation.

33.8.2 Instead of "=", press "RETURN".

The answer will be displayed above the next "SELECT COMMAND:" prompt.





G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

CAL CALCULATION

33.9 THE CAL COMMAND: FORMULAE

Parentheses determine the order in which arithmetic operations are carried out. Standard priority for the order of execution of operations is:

(1) PARENTHESES
(2) MULTIPLICATION AND DIVISION
(3) ADDITION AND SUBTRACTION

You may put parentheses around a formula which in turn contains a smaller formula in parentheses, etc. However, be certain that each parentheses set is complete and correctly matched.

NOTE: C2+C3(C4-C3)=C5

IN THE ABOVE FORMULA, EVERYTHING AFTER "C3" WILL BE IGNORED BY PIPS BECAUSE a(b)=ab IS NOT A VALID OPERATION. PARENTHESES CANNOT BE USED AS SIGNS FOR MULTIPLICATION.

C2+C3*(C4-C3)=C5 IS VALID AND WILL BE EXECUTED BY PIPS, IF "*" IS PUT BETWEEN "C3" AND THE FIRST PARENTHESES

NOTE: A FORMULA IS LIMITED TO 75 CHARACTERS.

33.10 CAL/C

"CAL/C", when entered in response to the "SELECT COMMAND=" prompt, allows you to perform calculations one after another without returning to the COMMAND MODE.

Every time PIPS finishes a calculation, "CALCULATION" will once again be displayed, without returning to the COMMAND MODE. This feature is especially convenient when entering a large number of calculations in succession. To return to the COMMAND MODE, press "ESC".

PROMPTS CAL

```
* SELECT COMMAND = CAL
CALCULATION:
* SELECT COMMAND =

* SELECT COMMAND = CAL/C
CALCULATION:
```


ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC ------ 53 | EF---226 | FT----248

X. FIGURE BUFFER CALCULATIONS & OPERATIONS

SHOW FIGURE BUFFER

FIGURE BUFFER OPERATION

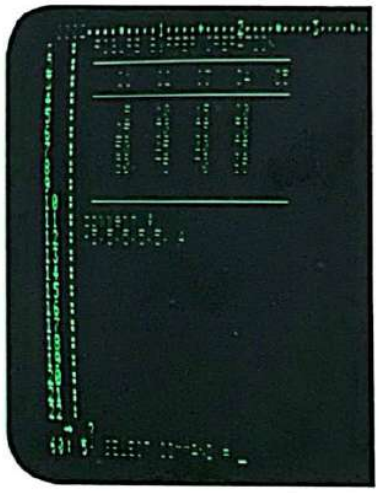
G - - - - 26
GF - - 247
GR - - 119
IC-N - -80
IC-Y - - -46
IL - - - - 77
IN - - -282
IR - - - - 44
L - - - - - - 91
LF - - - -232
MAR - -147
MAW - - 147
ML - - - 54
MT - - - 15
NF - - 166
O - - - - 9
P - - - - - - - - - - 23
PBACK - - - - 284
PF - - - - - - - 245
PROTECT - - - 276
RF - - - 56
SB - - - - -76
SET - - - 89
SFN - - 203
SORT - - -157
ST - - - 170
TD - - - 285
TRM - - - -75
TRS - - -73
UPD - - 195
W - - - 37

SHOW FIGURE BUFFER

Up until now, we have been doing calculations on rows or columns and writing all the results in TABLES. However, there will be times when you will want do calculations and save the results temporarily, or, to apply further arithmetic operations to these results and write them back into the TABLE or in a new TABLE in the MASTER BUFFER. All of these operations can be carried out in the FIGURE BUFFER.

34.1 THE BF COMMAND (Show Figure Buffer)

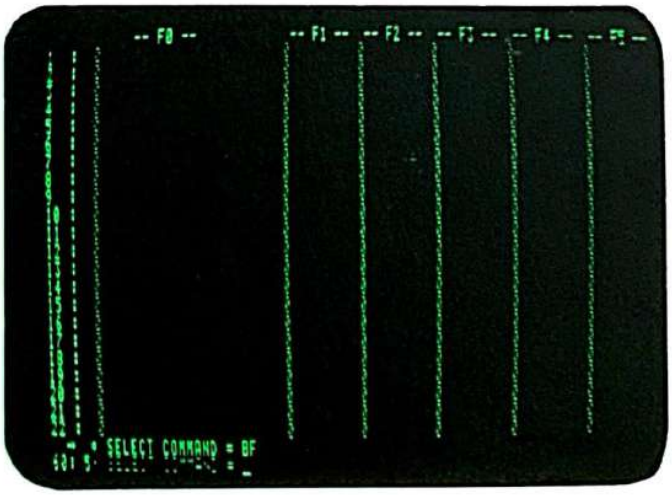
The BF Command allows you to display the FIGURE BUFFER by simply entering "BF" to "SELECT COMMAND", or at any time in the CALCULATION MODE by entering "BF" to "CAL" or "CAL/C"



34.2 BF COMMAND EXECUTION & FIGURE BUFFER CALCULATIONS

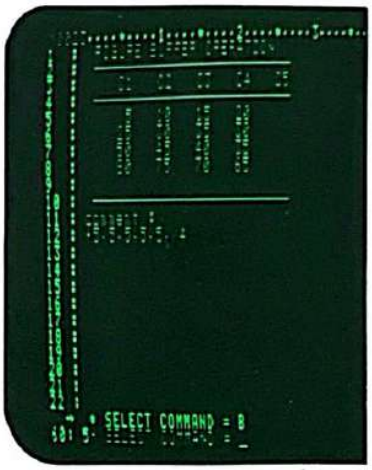
34.2.1 With this TABLE in the MASTER BUFFER, enter "BF", then press "RETURN".

You are now looking at the FIGURE BUFFER. Reading from left to right, you will see 6 columns, "F0 through F5".



G ---- 26	IC-Y---46	L ------91	ML---54	P ----------23	RF---56	SORT---157	TRS---73
GF--247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR ----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

B F SHOW FIGURE BUFFER



NOTE: UNLIKE THE MASTER AND SUB BUFFERS, THE FIGURE BUFFER IS ONLY 75 CHARACTERS WIDE. IT IS, HOWEVER, 60 LINES LONG AND THESE LINES MAY BE DISPLAYED BY SCROLLING.

34.2.2 We can display the MASTER BUFFER by entering "B" and pressing "RETURN".

34.2.3 Execute.

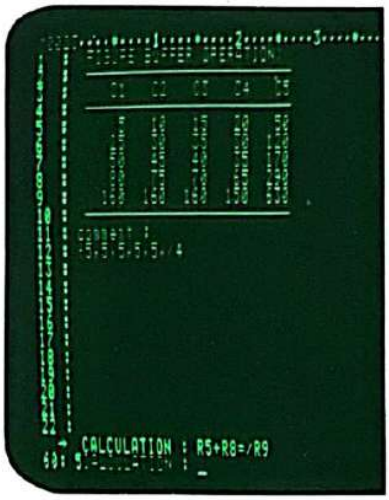
C1+C4=/C5

34.2.4 The results of calculations carried out in the MASTER BUFFER are always written into the F0 Column of the FIGURE BUFFER. We can confirm this by entering "BF" and pressing "RETURN".

NOTE: BOTH THE BF AND B COMMANDS CAN BE EXECUTED WHILE IN THE CALCULATION MODE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F------97
AU✱--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

SHOW FIGURE BUFFER B F

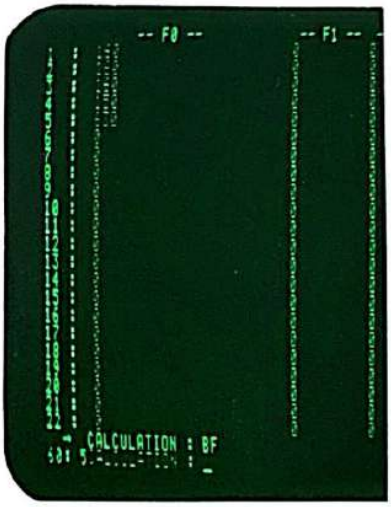


34.2.5 While the FIGURE BUFFER is still being displayed, enter this calculation to the "CALCULATION" prompt:

R5+R8=/R9

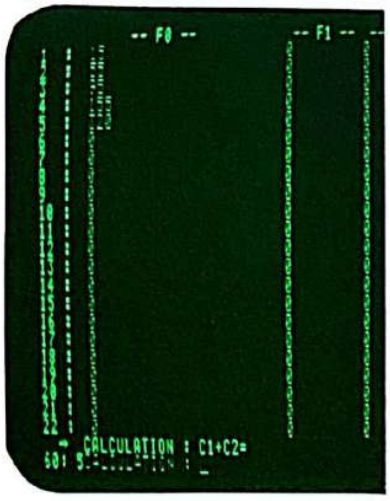
Your screen will display the MASTER BUFFER automatically.

NOTE: IT IS NOT NECESSARY TO HAVE THE MASTER BUFFER DISPLAYED ON THE CRT TO DO CALCULATIONS ON DATA IN THE MASTER BUFFER.



Execute the BF Command to display the FIGURE BUFFER again.

The results of this row calculation have been written over the results of the previous calculation in the F0 Column of the FIGURE BUFFER.



34.2.6 Do a calculation again, but this time, do not specify a location for the results to the right of the "=" sign.

C1+C2=

NOTE: WHEN A LOCATION FOR CALCULATION RESULTS IS NOT SPECIFIED, THEY ARE WRITTEN IN THE FIGURE BUFFER, AND THE FIGURE BUFFER IS AUTOMATICALLY DISPLAYED ON THE CRT.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

B F SHOW FIGURE BUFFER

34.2.7 To specify a location in the FIGURE BUFFER for calculation results, enter one of the F Column numbers (F1-F5) to the right of the "=" sign.

C3+C4=F1

Automatically results will be displayed in two locations: Column F1, and F0 (where the results of this calculation have been written over the results of the previous calculation).

34.2.8 Do another calculation:

C1+C3=F2

34.2.9 We can now do calculations in the FIGURE BUFFER and write the results in F3. No results will be written to your TABLE in the MASTER BUFFER.

F1*F2=F3

The results of this calculation will be written automatically in F0 and in the specified location at F3.

34.2.10 The results of a matrix calculation can also be written in the FIGURE BUFFER.

M5,1+M9,4=

The results will be written in the F0 Column.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

SHOW FIGURE BUFFER

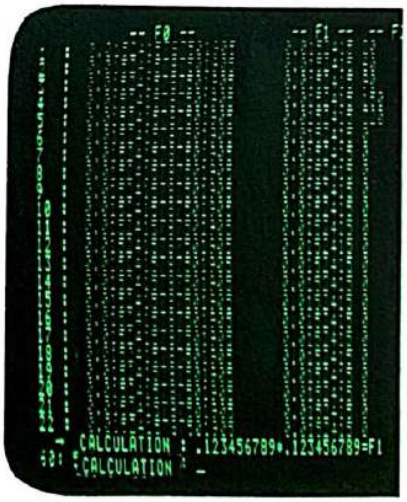
34.2.11 Matrix arithmetic can also be performed in the FIGURE BUFFER.

F1,1+F2,1=F4,1
F1,1+F2,5=F4,12

NOTE: A MATRIX POSITION IN THE FIGURE BUFFER IS SPECIFIED BY FIRST WRITING THE COLUMN NUMBER FOLLOWED BY A COMMA, THEN A LINE NUMBER. "F1,1" IS READ: "THE MATRIX POSITION AT COLUMN F1, LINE 1".

THIS IS OPPOSITE THE WAY A MATRIX POSITION IS USUALLY SPECIFIED IN THE PIPS III SYSTEM. A MATRIX POSITION IN A TABLE IN THE MASTER OR SUB BUFFER IS ALWAYS WRITTEN WITH THE LINE NUMBER GIVEN FIRST, THEN THE COLUMN NUMBER. "M1,1" SPECIFIES THE MATRIX POSITION AT LINE 1, COLUMN 1.

NOTE: BLOCK CALCULATIONS CANNOT BE CARRIED OUT IN THE FIGURE BUFFER.



34.2.12 In the FIGURE BUFFER PIPS can calculate up to the 16th decimal place in the F0 COLUMN. However, columns F1 through F5 are limited to eight significant digits. To demonstrate this, do the following calculation:

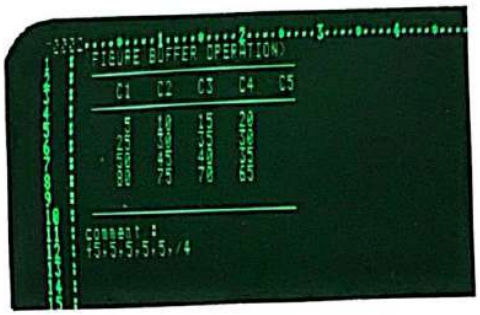
.123456789 * .123456789 = F1

G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT - - - 157	TRS - - - 73
GF - - 247	IL - - - - 77	LF - - - - 232	MT - - - 15	PBACK - - - - 284	SB - - - - 76	ST - - - 170	UPD - - 195
GR - - 119	IN - - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET - - - 89	TD - - - 285	W - - - 37
IC-N - - 80	IR - - - - 44	MAW - - 147	O - - - - 9	PROTECT - - - 276	SFN - - 203	TRM - - - 75	

F O FIGURE BUFFER OPERATION

35.1 THE FO COMMAND (Figure Buffer Operation)

With the FO Command, you can take the results of a calculation which have been written to the FO Column and insert them as data in a new TABLE. The data taken from the FO Column can be written in the new TABLE as either a column or row.



35.2 FO COMMAND EXECUTION

Results of calculations written in the FIGURE BUFFER can be copied to a line or column of a TABLE in the MASTER BUFFER.

EXAMPLES:

(1) C1+C4=/F1 RETURN
F1=C5 RETURN

(2) R5+R8=/F2
F2=R 9

The results of these calculations were first written to the FIGURE BUFFER; calculation (1) was then written to a column in the MASTER BUFFER and calculation (2) to a line.

The FO Command allows you to not only write, but also to insert and append a column or row of data taken from the FIGURE BUFFER and placed in the MASTER BUFFER.

When appending or inserting a row or column, the FO Command also allows you to write a title for the data added to the TABLE in the MASTER BUFFER.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ----74 | CA-U -- 214 | CM --275 | CTRL ----237 | DRL ---64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED ---223 | FO ---110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

FIGURE BUFFER OPERATION

F O

35.2.1 Execution of the B Command will display the MASTER BUFFER again. If this calculation is performed, the results are written automatically in the FIGURE BUFFER.

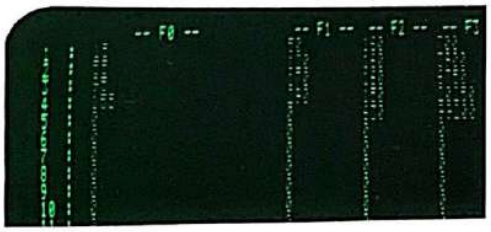
C1+C2=

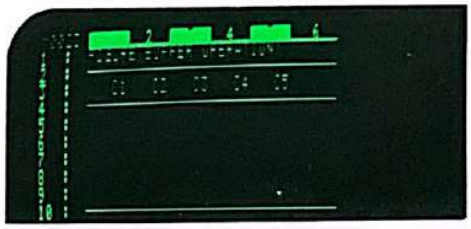
35.2.2 Transfer the TABLE to the SUB BUFFER with the TRS Command.

T R S RETURN

NOTE: IF YOU WANT TO DISPLAY THE ORIGINAL TABLE IN THE MASTER BUFFER AGAIN, ALL YOU HAVE TO DO IS EXECUTE THE SB COMMAND, AFTER ESCAPING FROM THE CALCULATION MODE.

35.2.3 We're going to take the data in the FO Column of the FIGURE BUFFER and write it in this new TABLE. We can do this with the FO Command:





F O RETURN

PIPS is asking if the new data is to be written to a row or column. We're going to write to a column, so enter "C".

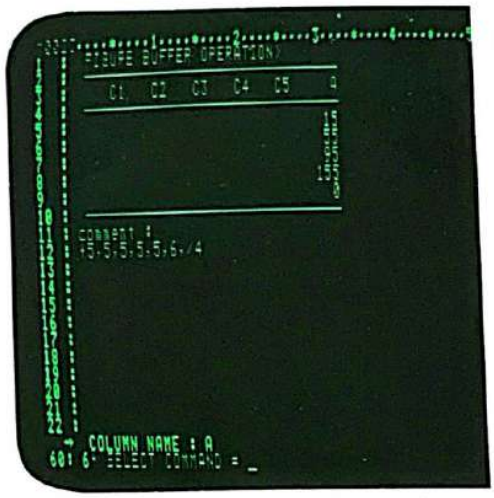
Now you specify whether you will APPEND (add the results as an extra column), WRITE (write over the contents of an existing column), or INSERT (insert between existing columns). Enter "A", then press "RETURN".

35.2.4 PIPS is asking for the FORMAT of the new column. Enter "6", then press "RETURN".

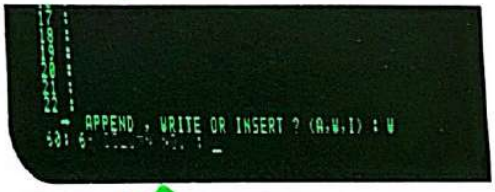
PIPS is asking for the name of the new column. "A" is going to be the name of the new column. After the column name entry, the command will execute and display the new column appended to the TABLE.

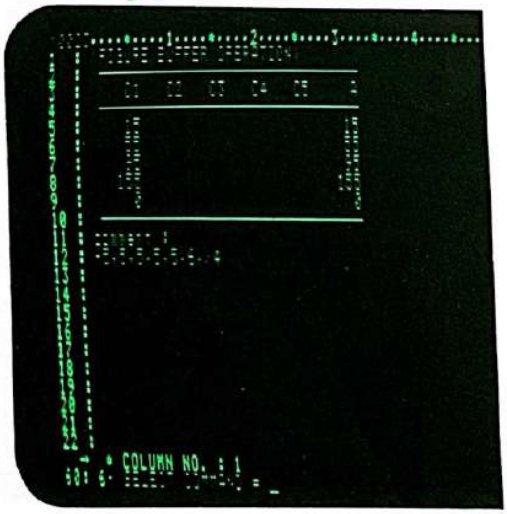
G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB ----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD ---285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

F O FIGURE BUFFER OPERATION



35.2.5 Execute the FO Command again. Copy the data into Column 1. This time specify "W" to the "APPEND, WRITE, INSERT" prompt.





NOTE: WHEN YOU SPECIFY "W", THE "COLUMN NAME" PROMPT WILL NOT APPEAR. THE DATA WILL BE WRITTEN OVER THE EXISTING CONTENTS OF THE COLUMN, UNDER THE SAME COLUMN TITLE. USE THE W COMMAND TO ENTER A NEW COLUMN TITLE.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ---248

FIGURE BUFFER OPERATION F O

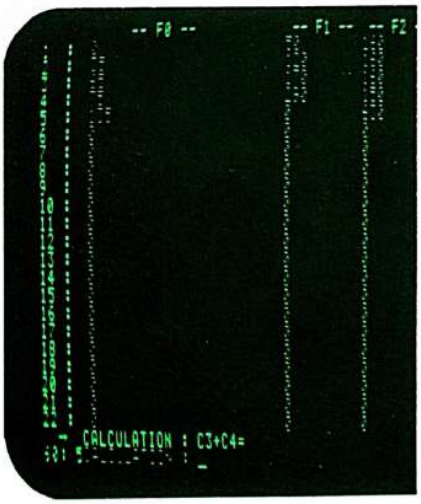
35.2.6 Make a fresh TABLE in the MASTER BUFFER. We're going to do a calculation and then write the results to a line with the FO Command. But first we'll swap buffers (SB Command) to get the original TABLE with data in it back into the MASTER BUFFER.

S B RETURN

NOTE: WE'VE INSERTED A LINE IN THE TABLE SO THAT WHEN WE EXECUTE THIS CALCULATION, THERE WILL BE A "0" AT "F0,1". THIS "0" RESERVES A POSITION FOR THE ROW NAME WE ARE GOING TO SPECIFY WITH THE FO COMMAND. YOU MUST DO THIS ONLY WHEN YOU INTEND GIVE THE ROW A TITLE. OTHERWISE, YOU WILL LOSE THE DATA ENTRY IN THE FIRST POSITION OF THE FO COLUMN WHEN WRITING THE DATA TO THE ROW WITH THE FO COMMAND.

Then:

CAL/C
C3+C4=

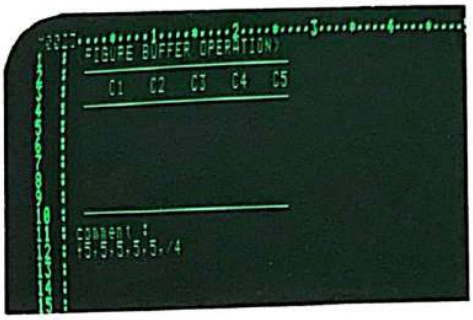


35.2.7 We're going to insert the results of this calculation into the empty TABLE presently in the SUB BUFFER, so swap buffers to get it back into the MASTER BUFFER.

S B RETURN

G - - - - 26 | IC-Y - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS - - -73
GF - - 247 | IL - - - - 77 | LF - - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

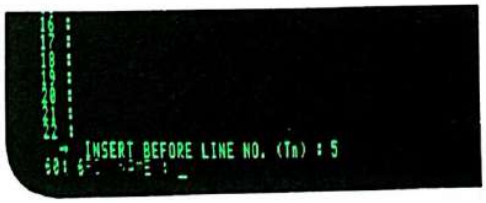
F O FIGURE BUFFER OPERATION

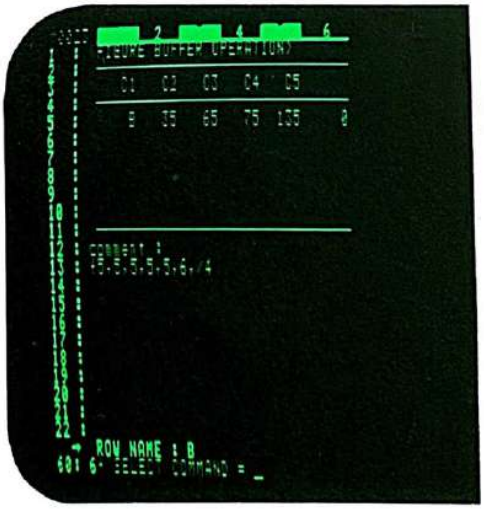


35.2.8 Execute FO, specifying "R" to the first prompt.

PIPS will write the data from the FO Column of the FIGURE BUFFER into Line 5 (titled "B").

The FO Command is especially useful when you want to do calculations on columns and then write the results as a row in a new TABLE, or when you want to do calculations on rows and then write the results to a new TABLE as a column.





ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT ------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

FIGURE BUFFER OPERATION F O

PROMPTS F O

(ROW SPECIFICATIONS)

```
* SELECT COMMAND = FO
ROW OR COLUMN ? (R,C) : R
APPEND , WRITE OR INSERT ? (A,W,I) : A
ROW NAME:
* SELECT COMMAND =
```

```
* SELECT COMMAND = FO
ROW OR COLUMN ? (R,C) : R
APPEND , WRITE OR INSERT ? (A,W,I) : W
WRITE LINE NO. (TN) : B
ROW NAME:
* SELECT COMMAND =
```

```
* SELECT COMMAND = FO
ROW OR COLUMN (R,C) : R
APPEND , WRITE OR INSERT ? (A,W,I) : I
INSERT BEFORE LINE NO. (TN) :
ROW NAME :
* SELECT COMMAND =
```

(COLUMN SPECIFICATIONS)

```
* SELECT COMMAND = FO
ROW OR COLUMN ? (R,C) : C
APPEND , WRITE OR INSERT ? (A,W,I) : A

ONLY 109 FORMAT LEFT
FORMAT ? :

COLUMN NAME :
* SELECT COMMAND =
```

```
* SELECT COMMAND = FO
ROW OR COLUMN ? (R,C) : C
APPEND , WRITE OR INSERT ? (A,W,I) : W
COLUMN NO. :
* SELECT COMMAND =
```

```
* SELECT COMMAND = FO
ROW OR COLUMN ? (R,C) : C
APPEND , WRITE OR INSERT ?(A,W,I) : I
INSERT BEFORE COLUMN NO. :

ONLY 109 FORMAT LEFT
FORMAT ? :

COLUMN NAME :
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

XI. GRAPHING DATA ON A TABLE

G ---- 26 | IC-Y--- 46 | L ------ 91 | ML --- 54 | P ---------- 23 | RF --- 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL ---- 77 | LF- - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF ------- 245 | SET - - -89 | TD - - - 285 | W - - - 37
IC-N- - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT- - - 276 | SFN - - 203 | TRM - - - 75

36.1 THE GR COMMAND (Graph)

In many cases, data in a TABLE can be much easier to understand if presented in graph form.

The GR Command lets you make a graph of data in a FORMATTED TABLE in the MASTER BUFFER. Two types of graphs are possible: BAR GRAPHS and DOT GRAPHS.

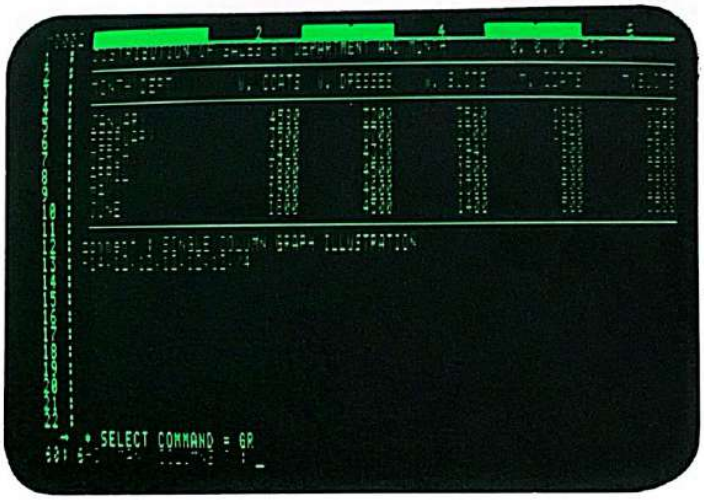
NOTE: THE GRAPH IS CREATED IN THE SUB BUFFER. BEFORE YOU EXECUTE THE GR COMMAND, BE CERTAIN NOTHING YOU WANT TO SAVE IS IN THE SUB BUFFER. WHEN A GRAPH APPEARS ON THE CRT, YOU ARE VIEWING THE SUB BUFFER; THE TABLE IS STILL IN THE MASTER BUFFER.

36.2 GR COMMAND EXECUTION: SINGLE COLUMN BAR GRAPH

36.2.1 Get the starting TABLE on PAGE 2 of the demonstration diskette into the MASTER BUFFER.

We're going to graph the data entries in Column 2 with a BAR GRAPH.

Column 1 of a TABLE automatically becomes the INDEX COLUMN for the graph. The width of this column is limited to 12 spaces, so before executing the GR Command, be sure Column 1 is 12 spaces or less.



NOTE: AN INDEX COLUMN (COLUMN 1) WIDER THAN 12 SPACES SHOULD BE RE-FORMATTED TO 12 SPACES OR LESS WITH THE CF COMMAND BEFORE GR COMMAND EXECUTION.

36.2.2 Execute.

PIPS is asking how many columns from the TABLE are to be graphed. Up to 5 columns may be graphed.

36.2.3 We want to graph only one column now, so we'll enter "1", then press "RETURN".

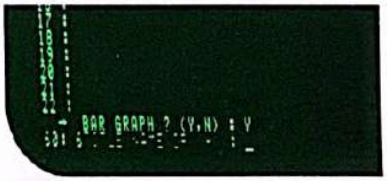
G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT--157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

GR GRAPH

PIPS wants to know which column in the TABLE is to be graphed.

36.2.4 We want to graph Column 2 ("W. COATS"), so enter "2". Press "RETURN".

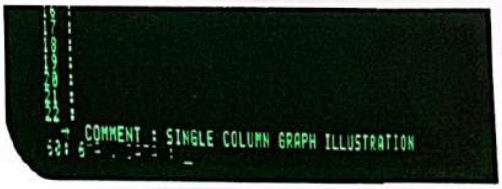
36.2.5 A "Y" specification to this prompt will give you a BAR GRAPH, an "N" specification a DOT GRAPH.



PIPS is asking if you want to enter a title for your graph or make the graph title the same as the title of the original TABLE.

To make the title of the graph the same as the TABLE, enter "*", and press "RETURN". To specify a new title for the graph, simply enter the new title and press "RETURN".

36.2.6 Here we can enter a comment for the graph. Just press "RETURN" when no comment is to be entered, or when the present comment entry on the original TABLE is satisfactory.



36.2.7 With a response to this and the next prompt, we can determine the upper and lower limits for the scale of the graph.

NOTE: THE NUMBER ENTERED SHOULD BE LARGER THAN THE LARGEST DATA ENTRY IN THE COLUMN.

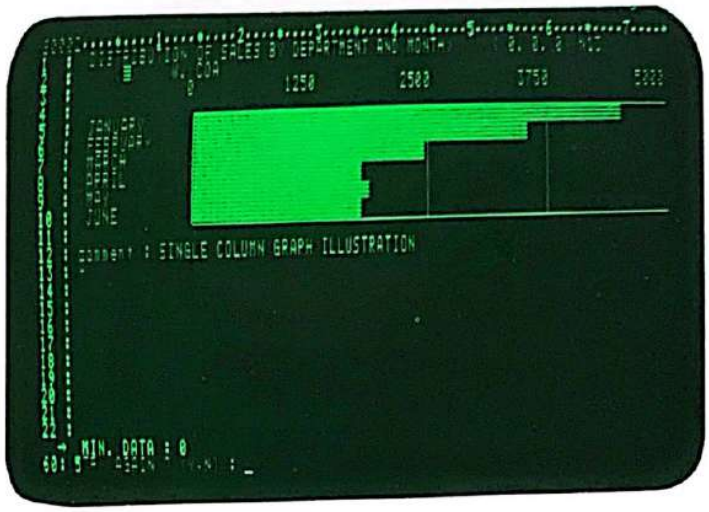
"5000" is the upper limit for your graph scale.

36.2.8 By pressing "RETURN" without making an entry, "0" can be specified as the lower limit of the scale.

NOTE: ANY NUMBER CAN BE SPECIFIED AS THE LOWEST LIMIT OF THE SCALE, BUT THE SPECIFICATION HERE SHOULD BE AT LEAST EQUAL TO THE LOWEST DATA ENTRY OF THE COLUMN YOU ARE GRAPHING.

ACM--143 | BF ---- 105 | CA-D---58 | CF --- 55 | CT ------- 41 | DL---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL---- 97 | COL -- 87 | D ------- 97 | ED---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC ------ 53 | EF---226 | FT----248

After pressing "RETURN", the graph will appear on the screen with "S000..." displayed in the upper left corner, indicating that graph is in the SUB BUFFER.



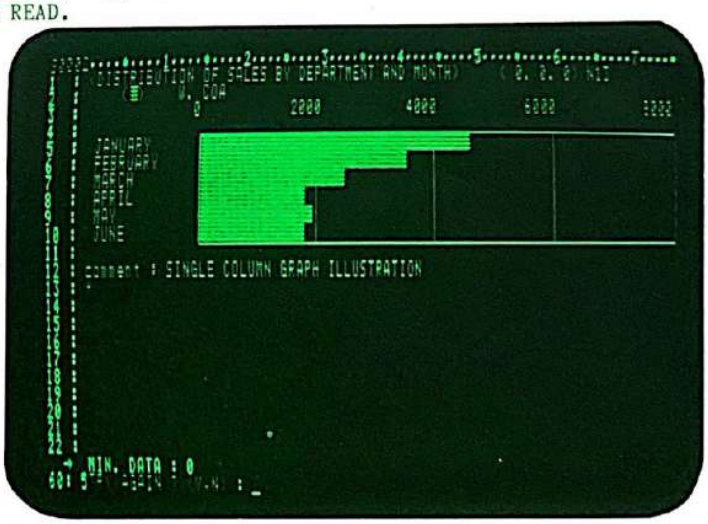
With the "TRY AGAIN" prompt, PIPS is asking if you want to re-specify the maximum and minimum data for the graph.

NOTE: THE SCALE YOU SELECT WILL BE DIVIDED INTO EQUAL INTERVALS FOR REFERENCE. FOR EXAMPLE, IF YOU SPECIFY A "MAX DATA" OF 100, THE GRAPH WOULD HAVE SCALE REFERENCE LINES AT: 0, 25,50,75,100.

IF THE DIFFERENCE BETWEEN THE MAXIMUM AND MINIMUM DATA WERE DIVISIBLE BY 4 (MAX - MIN / 4), THE REFERENCE POINTS WOULD BE EASIER TO READ.

36.2.9 We've re-specified "8000" as the maximum data and "0" as the minimum data.The graph will re-appear with the new scale: 0-8000.

By adjusting the maximum and minimum data specifications you can obtain optimum graphic representation of your data.



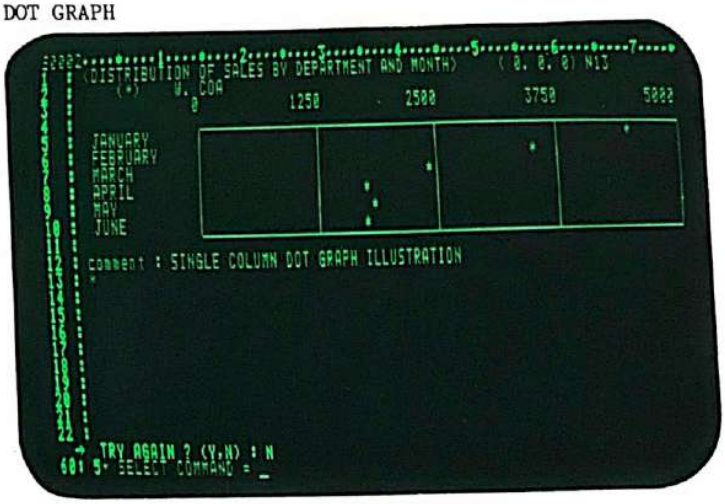
NOTE: THE GRAPH IS IN THE SUB BUFFER. IF YOU WANT A PERMANENT RECORD OF THE GRAPH, EXECUTE TRM, THEN PUT THE GRAPH TO A PAGE IN THE SUB FILE OR MASTER FILE WITH THE P COMMAND.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF--- 56 | SORT---157 | TRS---73
GF-- 247 | IL ---- 77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST - - - 170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF ------- 245 | SET---89 | TD - - - 285 | W - - - 37
IC-N--80 | IR ---- 44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM - - -75

GR GRAPH

36.3 GR COMMAND EXECUTION: SINGLE COLUMN DOT GRAPH

PAGE 2 should still be in the MASTER BUFFER. To make a DOT GRAPH for Column 2, repeat the procedure above, but this time enter "N" in response to the "BAR GRAPH?" prompt.



36.4 GR COMMAND EXECUTION: MULTI-COLUMN BAR GRAPH

36.4.1 Execute the B Command to display the original TABLE on the CRT. To make a multiple BAR GRAPH for the whole TABLE, we'll need the data from each of the five columns.

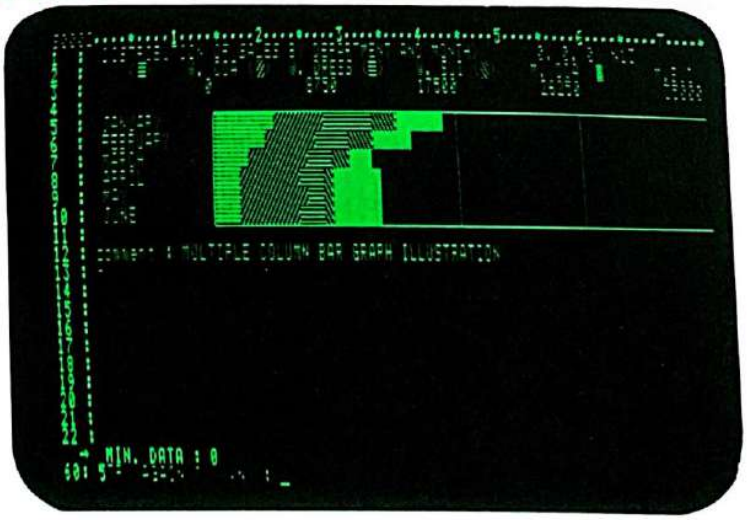
36.4.2 Enter 5 to the prompt asking how many columns are to be graphed.

To the next five prompts, we'll enter the column numbers of the columns in the TABLE which we want to appear in the graph, in the order to be displayed.

36.4.3 Enter "35,000" for the maximum data, then press "RETURN".

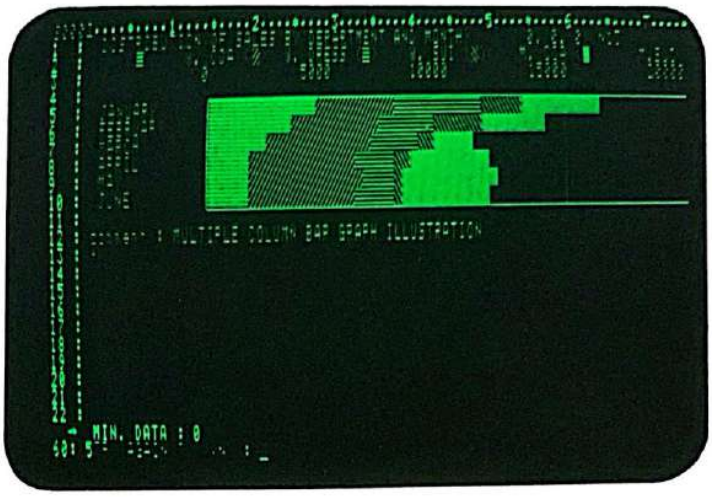
NOTE: YOUR ENTRY HERE MUST BE LARGER THAN ANY ONE LINE TOTAL IN ORDER TO CREATE A MEANINGFUL GRAPH.

36.4.4 After the "MIN DATA" prompt appears and "RETURN" is pressed (without making an entry), the graph will appear on the CRT with "0" as the lower limit of the scale.



ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS ---267 | BS ----74 | CA-U -- 214 | CM -- 275 | CTRL ----237 | DRL---64 | F------ 97
AU#--270 | BT----21 | CAL---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO ---110
B ---- 33 | CA-A -- 209 | CC ------42 | CS ---185 | DC ------- 53 | EF---226 | FT----248

We've entered "Y" in order to re-specify the maximum data as "20,000". Note how this improves the appearance of the graph and produces a more readable scale at the top of the screen.

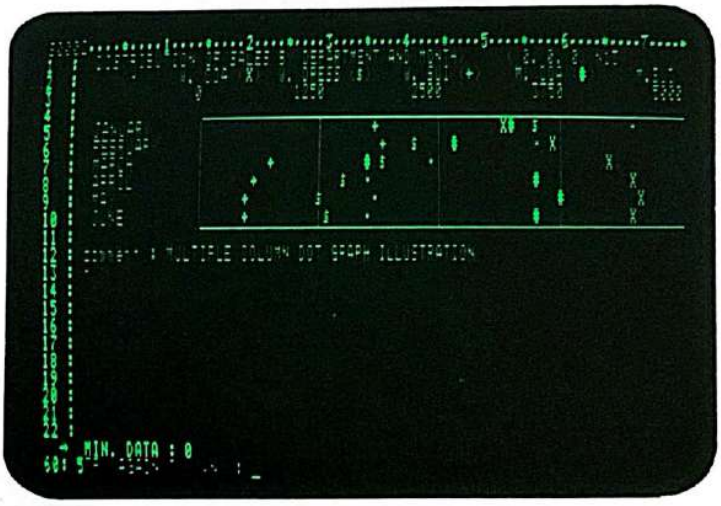


If you are satisfied with the appearance of the graph, enter "N" , then press "RETURN". PIPS will return to the COMMAND MODE.

NOTE: A MULTIPLE BAR GRAPH REPRESENTS THE TOTALS OF ALL COLUMNS SPECIFIED.

36.5 GR COMMAND EXECUTION: MULTI-COLUMN DOT GRAPH

36.5.1 To make a multiple DOT GRAPH, simply follow the procedure outlined above for the multiple BAR GRAPH, but be sure to enter "N" to the "BAR GRAPH" prompt.



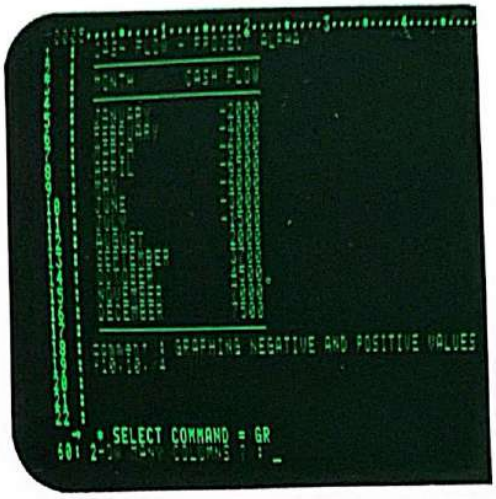
NOTE: UNLIKE THE MULTIPLE BAR GRAPH WHICH REPRESENTS THE TOTALS OF ALL COLUMNS SPECIFIED, THE DOT GRAPH REPRESENTS ONLY SINGLE VALUES.

SINCE THERE IS NO DATA ENTRY IN THE TABLE GREATER THAN 5000, ENTER "5000" TO THE "MAX DATA" PROMPT TO DEFINE THE UPPER LIMIT OF THE SCALE.

G---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF-- 247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF------- 245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

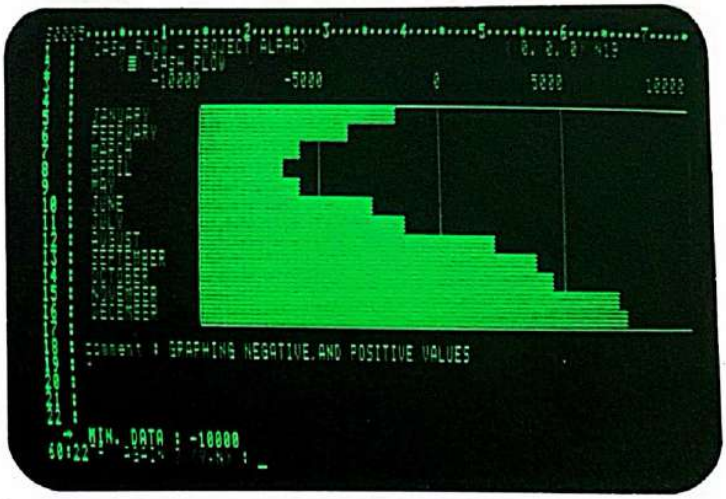
36.6 GRAPHING NEGATIVE VALUES

A set of values which contains both negative and positive numbers can also be graphed. However, the absolute values of the maximum and minimum data specifications should be equal in order to create an easily understandable graph with a "0" line in the center.



For example, if we were to graph a TABLE for a single column where the maximum entry is 7500 and the minimum entry -6500 , "10000" could be specified in response to the "MAX DATA" prompt and "-10000" entered to the "MIN. DATA" prompt to create an easily understandable graph.

Balancing the maximum and minimum values in this way will write the graph with "0" as the midpoint of the linear scale across the top of the graph.



ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

PROMPTS G R

```
* SELECT COMMAND = GR
HOW MANY COLUMNS  :
(1) COLUMN NO. :
:
:
BAR GRAPH  ? (Y,N) : Y
TITLE NAME OR (*) :
COMMENT :
MAX. DATA:
MIN. DATA:
TRY AGAIN ? (Y,N) : N
* SELECT COMMAND =


BAR GRAPH ? (Y,N) : N
TITLE NAME OR (*) :
COMMENT :
MAX. DATA:
MIN. DATA:
TRY AGAIN ? (Y,N) : Y
MAX. DATA:
MIN. DATA:
TRY AGAIN ? (Y,N) : N
* SELECT COMMAND =
```


G ---- 26	IC-Y---46	L ------91	ML---54	P ----------23	RF --- 56	SORT- -157	TRS---73
GF -- 247	IL ----77	LF----232	MT---15	PBACK---- 284	SB ----76	ST - - - 170	UPD--195
GR - -119	IN- - -282	MAR - -147	NF - - 166	PF ------- 245	SET---89	TD - - - 285	W - - -37
IC-N- -80	IR ---- 44	MAW- - 147	O ---- 9	PROTECT---276	SFN--203	TRM - - -75	

XII. CALCULATIONS (Part 2)

G ---- 26
GF -- 247
GR -- 119
IC-N -- 80
IC-Y --- 46
IL ---- 77
IN --- 282
IR ---- 44
L ------ 91
LF ---- 232
MAR -- 147
MAW -- 147
ML --- 54
MT --- 15
NF -- 166
O ---- 9
P ---------- 23
PBACK ---- 284
PF ------- 245
PROTECT --- 276
RF --- 56
SB ---- 76
SET --- 89
SFN -- 203
SORT --- 157
ST --- 170
TD --- 285
TRM --- 75
TRS --- 73
UPD -- 195
W --- 37

37.1 FUNCTIONS

There are 20 mathematical FUNCTIONS in PIPS which are classified in three groups: PIPS FUNCTIONS, GENERAL FUNCTIONS and POWER FUNCTIONS.

37.2 PIPS FUNCTIONS

There are seven PIPS FUNCTIONS:

(1) ADD : ADDITION

(2) SUB : SUBTRACTION

(3) MLT : MULTIPLICATION

(4) DVD : DIVISION

(5) MAX : FIND MAXIMUM

(6) MIN : FIND MINIMUM

(7) AVE : FIND AVERAGE

Addition, subtraction, multiplication and division with PIPS were introduced in Section 33 of the this guide. With PIPS FUNCTIONS, these same operations can be performed but with more flexibility.

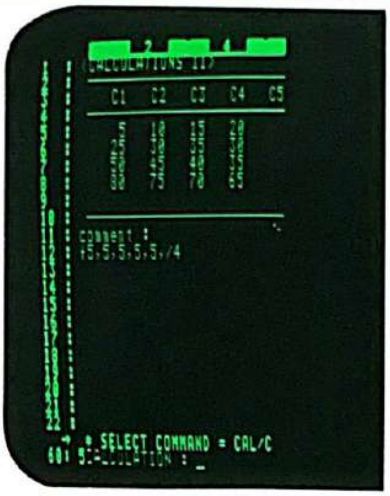
The MAX, MIN and AVE FUNCTIONS are introduced here for the first time. They are used to determine the maximum, minimum or average values in specified lines, columns or blocks of lines or columns, and write that value to a specified location.

Until now, block calculations have been limited to specifications which only allow us to specify a block of rows or columns and write results into the TABLE for every line and column.

With PIPS FUNCTIONS, however, we can specify block calculations to be carried out on a SINGLE ROW OR COLUMN and write the result to a matrix position.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

C A L FUNCTIONS



In Section 33.7 we introduced block calculation:

R5+R8=/R9

A PIPS FUNCTION will accomplish the same thing:

ADD[R5,9]=R10

when,

(1) "ADD" is the PIPS FUNCTION specified. Any of the seven PIPS FUNCTIONS listed above are possible,

(2) a parentheses "(" or bracket "[" precedes the entries which follow,

(3) "R" specifies a row ("C" for column also possible),

(4) "5" specifies the STARTING ROW NUMBER,

(5) "," a comma separates the number entries enclosed by parentheses or brackets,

(6) "8" specifies the ENDING ROW NUMBER FOR THE BLOCK CALCULATION ("T" is also possible),

(7)a parentheses "(" or bracket follows the calculation specifications,

(8) "=" an equal sign separates the calculation entries from the right half of the equation,

(9) "R9" or any entry to the right of the "=" sign specifies the location where the results are to be written.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT-------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D-------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

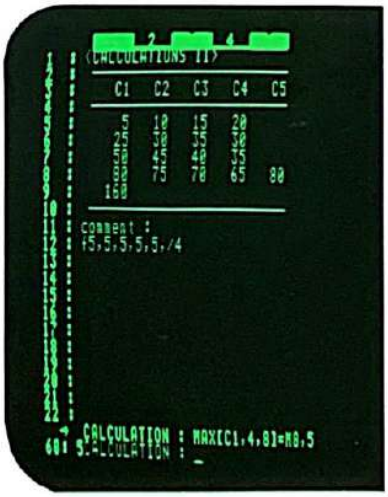
Entering "ADD[R5,8]=R9 to the CALCULATION prompt and pressing "RETURN" would add Line 5 through and including Line 8 and write the results in Line 9.

As we can see in this example, the data entries for every column have been totalled and written in Line 10. There will be times, however, when you may want to specify a block calculation to be carried out on only one line or column.

You can do this very easily by adding a third number specification within the parentheses or bracket:

ADD[R5,8,1]=M9,1

This calculation specification tells PIPS to carry out the FUNCTION ("ADD") over the BLOCK (starting with "R5" and ending at Row "8") but only on Column 1. Compare the results of this calculation with that of the previous screen.



When the first two numbers of a specification for a PIPS FUNCTION specify COLUMN(S), the third number specifies a ROW. Conversely, when the first two numbers specify ROW(S), the third number specifies a COLUMN.

EXAMPLES:

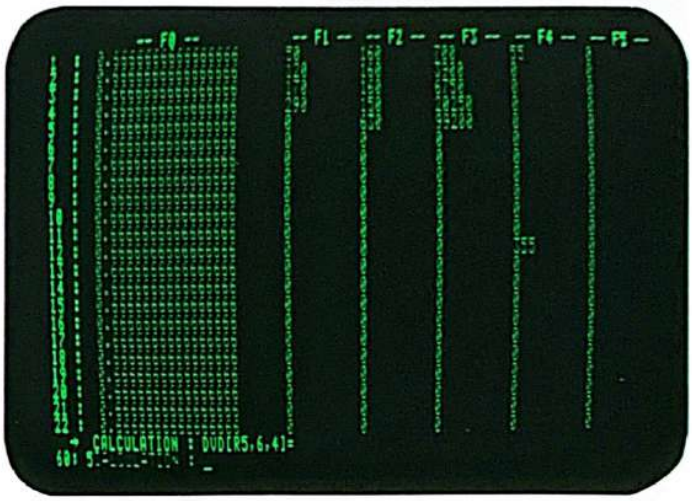
MAX(C1,4,8)=M8,5

This formula will find the maximum value in Line 8, Columns 1 through 4, and write that value at matrix position M8,5.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W----37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

DVD[R5,6,4]=

In Column 4, the Line 5 data entry will be divided by that of Line 6 and the result written in the FO Column of the FIGURE BUFFER.



37.3 GENERAL FUNCTIONS

Before executing PIPS functions or any calculation which will give you a result carried to several decimal places, execute the D Command so PIPS will be able to write larger decimals to your TABLE.

If the results of a calculation are written to a data position which is too narrow, "*******" will appear in the data position specified in the MASTER BUFFER.

To make the column wider, execute the CF Command then do the calculation again.

As explained earlier in Section 33.2, "THE D AND F COMMANDS", PIPS is normally set at "D1.1" which allows only whole numbers to be written to a TABLE.

Before executing PIPS functions or any calculation which will give you a result carried to several decimal places, execute the D Command so PIPS will be able to write larger decimals to your TABLE.

NOTE: IF YOU TRY TO WRITE A LARGE DECIMAL TO A TABLE WITH "D1.1" IN EFFECT, THE SCREEN DISPLAY WILL SWITCH AUTOMATICALLY FROM THE MASTER BUFFER TO THE FIGURE BUFFER WITHOUT WRITING ANYTHING IN THE TABLE. EXECUTE THE D COMMAND SO SUBSEQUENT CALCULATIONS CAN BE WRITTEN DIRECTLY TO THE TABLE IN THE MASTER BUFFER.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

There are eleven GENERAL FUNCTIONS:

(1) ABS(X): Absolute value of X

(2) SIN(X): Sine of X

(3) COS(X): Cosine of X

(4) TAN(X): Tangent of X

(5) EXP(X): Value of the natural log base e raised to the power of X

(6) LOG(X): Common logarithm of X to base 10

(7) LN(X) : Natual logarithm of X to base e

(8) SQR(X): Square root of X

(9) SGN(X): Sign of X (Returns a value of +1, -1 or 0.

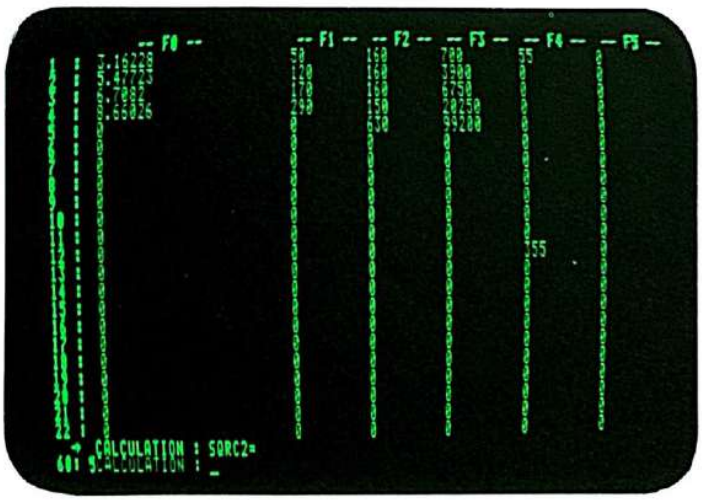
(10) INT(X): Integer of X, made by truncating the fraction

(11) RND(X): Random number (Returns a random value between 0 and +0.999999).

NOTE: DO NOT USE THE SIN, COS AND TAN FUNCTIONS WHILE THE "F," (COMMA SET) SPECIFICATION IS IN EFFECT. IF "F," IS SET, CALCULATION RESULTS WILL BE INCORRECT.

To find the square root of all the values listed in Column 2 and write them in the FIGURE BUFFER, for example, use this equation:

SQR(C2)=



NOTE: ONLY PARENTHESES "()" CAN BE USED WITH THE GENERAL FUNCTIONS. DO NOT USE BRACKETS "[]".

G - - - - 26	IC-Y---46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT- - -157	TRS- - -73
GF - - 247	IL - - - - 77	LF- - - -232	MT - - - 15	PBACK- - - - 284	SB - - - -76	ST - - - 170	UPD--195
GR - - 119	IN- - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET- - -89	TD - - - 285	W - - - 37
IC-N- -80	IR - - - - 44	MAW- - 147	O - - - - 9	PROTECT- - -276	SFN--203	TRM - - -75	

37.4 POWER FUNCTIONS

In the PIPS III SYSTEM, there are two POWER FUNCTIONS:

(1) (x)**n=

(2) (x)^n=

where "x" is a value, any real number entered directly or data specified by column, row or matrix positionand "n" is the exponent.

Formula (1) is for single precision arithmetic,

(C1)**2=C6

All the values entered in Column 1 will be squared and the results written to Column 6.

Using formula (1) as an ELECTRONIC SCRATCH PAD (See 33.8),

8**2 RETURN

or,

8.2**2 RETURN

The second POWER FUNCTION formula (2) is used for double precision arithmetic:

8.2^2 RETURN

ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT ------- 41	DL ---- 49	END --- 4
AS --- 267	BS ---- 74	CA-U -- 214	CM -- 275	CTRL ---- 237	DRL --- 64	F ----- 97
AU*--270	BT ---- 21	CAL ---- 97	COL -- 87	D ------- 97	ED ---223	FO --- 110
B ---- 33	CA-A -- 209	CC ----- 42	CS ---185	DC ------ 53	EF ---226	FT ----248

38.1 ACCESSING DATA ON PAGES LOCATED OUTSIDE THE MASTER BUFFER

During calculations, the PIPS III SYSTEM allows us to access data located in the MASTER FILE and the SUB FILE.

We are now able to greatly expand the range of data which we can use in performing calculations. Previously we have been limited to working from data in the MASTER BUFFER or FIGURE BUFFER and writing the results of our calculations to a TABLE in the MASTER BUFFER or in the FIGURE BUFFER.

In the first chapter on calculation three very important procedures were introduced:

(1) Arithmetic between columns and lines,

(2) Matrix arithmetic,

(3) Block arithmetic on columns or lines.

After you finish this section, you'll be able to perform these basic calculations using data from the MASTER FILE, the SUB FILE, or both. The basic formula for calculations is the same. All you need to do is specify the number of the PAGE from which you want to take the data.

To use data on a PAGE in the MASTER FILE, simply prefix the "C", "R" or "M" specification with "#" followed by the PAGE number.

(1) #3R1+#4R4=R10

PIPS will add Line 1 on PAGE 3 in the MASTER FILE to Line 4 in the MASTER FILE and write the sum in Line 10 of the TABLE in the MASTER BUFFER.

To use data on a PAGE in the SUB FILE for calculations, prefix the "C", "R", or "M" specification with "#S" followed by the PAGE number.

(2) #S1R1+#S2R1=R11

The specified rows in the PAGES of the SUB FILE will be added and the results written in Line 11 of the TABLE in the MASTER BUFFER.

G---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF------- 245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

Compare:

(3) #5C2/#2SC8=

Column 2 on PAGE 5 of the MASTER FILE will be divided by Column 8 on PAGE 2 of the SUB FILE and the results written in the FO Column of the FIGURE BUFFER.

(4) #6M16,7*#5M5,4=M17,8

The data at matrix position 16,7 on PAGE 6 in the MASTER FILE will be multiplied by the data at matrix position 5,4 on PAGE 5 of the MASTER FILE, and the product written at matrix position 17,8 in the MASTER BUFFER.

NOTE: IN USING PAGE SPECIFICATIONS FOR CALCULATIONS, PIPS FUNCTIONS, GENERAL FUNCTIONS, AND POWER FUNCTIONS CAN BE APPLIED TO DATA IN THE MASTER FILE BUT NOT THE SUB FILE.

(5) ADD#5(C2,T)=C8

The sums of all columns from Column 2 to the last column in the TABLE on PAGE 5 of the MASTER FILE are written into Column 8 of the MASTER BUFFER.

(6) ADD#5(C2,T,7)=M16,5

The maximum value in Line 7, found between Column 2 and the last column of the TABLE, is written into the matrix position at 16,5 in the MASTER BUFFER.

Adding the results of block arithmetic on specified PAGES is also possible:

(7) ADD#9(C1,T)+ADD#10(C1,T)=C5

The total of all columns in the TABLE on PAGE 9 have been added to the total of all columns on PAGE 10 and the results written in Column 5 of the MASTER BUFFER.

In example (7) we have specified two separate calculations (ADD) to the left of the "=" sign. The results of these calculations have been written separately into the FIGURE BUFFER, the results of "ADD#9(C1,T)" at F1 and the results of "ADD#10(C1,T)" at F2. These results are in turn added together ("+") and the final result written in F0. Should you care to see these results in the FIGURE BUFFER, simply execute the BF Command.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

PAGE CALCULATIONS

C A L

The results of calculations can be directly written to a PAGE in the MASTER FILE or SUB FILE. Prefix the "R","C" or "M" specification to the right of the "=" sign with the appropriate specifications:

(8) ADD#12(C1,T)=#15C6

(9) C1*C2=#S1C1

When the results of a calculation are written directly to a PAGE in the MASTER FILE, such as in (8), there will be a short delay after pressing "RETURN" and "<CALCULATION RESULTS>" will appear above "SELECT COMMAND". The FIGURE BUFFER will be displayed automatically with the results of your calculation.

When the results of calculations are written directly to the SUB FILE as in (9), the FIGURE BUFFER will again be displayed automatically, without "<CALCULATION RESULTS>" appearing over the "SELECT COMMAND :" prompt.

NOTE: WHEN THE RESULTS OF CALCULATIONS ARE WRITTEN DIRECTLY TO A PAGE IN THE SUB FILE OR MASTER FILE WITH PAGE NUMBER SPECIFICATIONS TO THE RIGHT OF THE "=" SIGN, BE SURE THE CALCULATIONS ARE CORRECTLY ENTERED BEFORE EXECUTION. AFTER YOU PRESS "RETURN" THERE WILL BE NO CHANCE TO CONFIRM RESULTS.

Consider this example:

(10) #6R5+#2SR5=#7R10

Such an equation in the PIPS SYSTEM is possible. However, a TABLE (any TABLE) must be in the MASTER BUFFER before "CAL" or "CAL/C" can be entered to "SELECT COMMAND :".

39.1 THE CNT FUNCTION (Count)

Use the CNT FUNCTION to count the number of lines or columns in your TABLES. "CNT" can be executed on PAGES in the MASTER BUFFER and the MASTER FILE, but not the SUB FILE.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

Let's say you have a large TABLE in the MASTER BUFFER, and you want to know how many data entries you've made in your rows or columns:

The number of rows or columns will be written to the FIGURE BUFFER. We can, of course, write the result to a matrix position in the MASTER BUFFER,

```
CNT(R)=M5,1
```

or to another TABLE in the MASTER FILE:

```
CNT(R)=#12M5,1
```

We can also count rows or columns in TABLES located in the MASTER FILE by specifying the PAGE number:

```
CNT#10(R)=M5,1
CNT#10(C)=#12M5,2
```

NOTE: THE COUNT FUNCTION CANNOT BE USED TO COUNT ROWS OR COLUMNS ON BLOCKS OF PAGES SPECIFIED WITH THE "P" SPECIFICATION DESCRIBED IN THE PREVIOUS SECTION.

40.1 CALCULATING OVER BLOCKS OF PAGES

PIPS FUNCTIONS, GENERAL FUNCTIONS, and POWER FUNCTIONS can be used to perform calculations over several consecutive PAGES, taking data from a specified row, column or matrix position from each PAGE.

When the same series of PAGES are to be specified for many calculations, a group of consecutive PAGES may be designated as a block in the MASTER FILE or SUB FILE, but not both.

When you want to perform calculations on registered blocks, prefix the FUNCTION with "E", then write the equation, just as we have done in previous sections:

```
EMAX(R10)=
```

The results of such calculations may be written into a line, column or matrix position in the MASTER BUFFER, MASTER FILE, SUB FILE or FIGURE BUFFER. However, a matrix position cannot be specified for results in the FO Column of the FIGURE BUFFER, though you may do so in any of the other columns (F1-F2).

ACM--143	BF----105	CA-D---58	CF---55	CT-------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

40.1.1 If we had the following TABLES on PAGES 9,10 and 11 in the MASTER FILE, and TABLE 12 in the MASTER BUFFER.

```
1  : <CALCULATIONS>
2  :
3  :    C1   C2   C3   C4   C5
4  :
5  : → 2    80   21   21
6  :   4    30   47
7  :   16   50   31
8  :   40   25   67
9  :   30   35   89
10 :
11 :
12 : comment : PAGE 9
13 : f5,5,5,5,5,/4
```

```
1  : <CALCULATIONS>
2  :
3  :    C1   C2   C3   C4   C5
4  :
5  : → 1    2    2    2
6  :   2    2    2
7  :   1    1    1
8  :   2    2    1
9  :   1    1    2
10 :
11 :
12 : comment : PAGE 10
13 : f5,5,5,5,5,/4
```

```
1  : <CALCULATIONS>
2  :
3  :    C1   C2   C3   C4   C5
4  :
5  : → 5    5    5    3
6  :   3    5    3    5
7  :   3    3    3    5
8  :   5    5    3    5
9  :   3    3    3    5
10 :
11 :
12 : comment : PAGE 11
13 : f5,5,5,5,5,/4
```

In this example, we're going to designate PAGES 9,10,and 11 as the block for calculations.

40.1.2 To specify a group of PAGES for calculation, enter "P" to the "CALCULATION" prompt and press "RETURN".

Enter "9,11" to the "PAGE NUMBERS ?" prompt and press return. PIPS will return to CALCULATION MODE.

To specify a block of consecutive PAGES in the MASTER FILE, make the entry in this order: STARTING PAGE NUMBER-COMMA-ENDING PAGE NUMBER.

"1,31" would specify every PAGE in the MASTER FILE.

"5,19" would specify PAGES 5, 19 and all PAGES in between as a block.

```
1  : <CALCULATIONS>
2  :
3  :    C1   C2   C3   C4   C5
4  :
5  :
6  :
7  : comment : PAGE 12
8  : f5,5,5,5,5,/4
```

```
1  : <EADD[R5]=R5>
2  :
3  :    C1   C2   C3   C4   C5
4  :
5  :   8    87   28   26   0
6  :
7  : comment : PAGE 12
8  : f5,5,5,5,5,/4
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

To specify a block of PAGES in the SUB FILE, prefix the first PAGE number with an "S", enter a comma, then the number of the last PAGE.

"S1,10" would specify every PAGE in the SUB FILE as part of the block to be used for calculations.

"S5,8" would specify PAGES 5, 8 and every PAGE in between as the block. Note that there is no need to prefix the number specification for the last PAGE with an "S".

A "C" entry to this prompt would specify PAGES of a block previously specified with the SFN Command. Refer to the later section in this guide which explains the SFN Command.

40.1.3 To specify a calculation on a block of PAGES, prefix the equation with "E", then write the equation just as we have done in previous sections.

```
EADD(R5)=R5
```

The data in Line 5 of every PAGE specified in the block would be added and the results written to R5 in the TABLE in the MASTER BUFFER.

NOTE: THE "P" SPECIFICATION REMAINS IN EFFECT UNTIL ANOTHER BLOCK OF PAGES IS REGISTERED, OR UNTIL THE END COMMAND IS EXECUTED. TO DISPLAY THE SPECIFICATION CURRENTLY REGISTERED, ENTER "P=" TO THE CALCULATION PROMPT AND PRESS "RETURN". THE CURRENT BLOCK SPECIFICATION WILL APPEAR ON THE CRT DISPLAYED ABOVE "SELECT COMMAND:".

The results of calculations on registered blocks of PAGES can be written to a column, row or matrix position in the MASTER BUFFER, MASTER FILE, FIGURE BUFFER or SUB FILE:

```
EADD(R5)=R10
       =#10R10 or #S4R10 also possible

EADD(C1)=C5
       =#12C5 or #S4C5 also possible

EADD(M5,1)=M5,10
         =#12M5,10 or #S4M5,10 possible
```

NOTE: BLOCK CALCULATIONS WITH PIPS FUNCTIONS ON REGISTERED PAGES ARE NOT POSSIBLE. FOR EXAMPLE, EADD(C1,T)=C5 CANNOT BE EXECUTED.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC------53	EF---226	FT----248

XIII. THE ACM, MAR AND MAW COMMANDS

ACCUMULATE

MATRIX READ

MATRIX WRITE

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

ACCUMULATE A C M

41.1 THE ACM COMMAND (Accumulate)

The ACM Command is very useful for business applications, such as balancing accounts where it is necessary to calculate a running total after successive transactions as well as a grand total.

41.2 ACM COMMAND EXECUTION

In the execution of the ACM Command PIPS asks for two column specifications:

(1) The number of the MAIN COLUMN,

(2) and the number of the SUBORDINATE COLUMN (SUB COLUMN).

The MAIN COLUMN is the column in which you want to write the running total. The SUB COLUMN is the column which contains data to be used in calculating the running total.

After execution, any line of the MAIN COLUMN will contain the running total of the SUB COLUMN up to and including the corresponding line in the SUB COLUMN.

The last line of the MAIN COLUMN always represents the grand total of the SUB COLUMN.

The same column may be specified as both the MAIN COLUMN and the SUB COLUMN with identical column number entries to PIPS prompts.

When the same column is specified, however, the running total is written over the original data, leaving you with no record of the data from which the running totals were calculated.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD ---285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

ACM ACCUMULATE

For our example, we'll use the TABLE on PAGE 5. This TABLE has only two columns, one for the days of the week and another for daily entries of gross sales.

In order to retain the original data as well as write the running total, a new column is necessary.

For clarity, we've given the new column the title "MAIN COLUMN", although any title may be entered, of course.

The ACM Command calculates the first line of the MAIN COLUMN and the second line of the SUB COLUMN, then the second line of the MAIN COLUMN and the third line of the SUB COLUMN, and so on.

Look at our example again. The data in Line 5 of the MAIN COLUMN will be calculated with the data in Line 6 of the SUB COLUMN and written in Line 6 of the MAIN COLUMN.

This means that with the TABLE in its present form, the data at Line 5 of the SUB COLUMN would be left out of the calculation. Such a calculation would be incorrect from the beginning.

This situation is easily corrected by executing the IR Command, specifying Line 5 and then pressing "ESC".

The calculation will begin at the first line of the MAIN COLUMN (Line 5), which is blank and read as "0". But now, the data in Line 6 of the new TABLE, which would have been ignored without the extra line inserted,, will be included in the calculation.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ----74 | CA-U -- 214 | CM -- 275 | CTRL ----237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------- 53 | EF ---226 | FT ----248

Now we're ready to calculate a running total of the data for Column 2 (the SUB COLUMN) and write it in Column 3 (the MAIN COLUMN).

NOTE: THE ACM COMMAND CAN ONLY BE APPLIED TO A TABLE IN THE MASTER BUFFER.

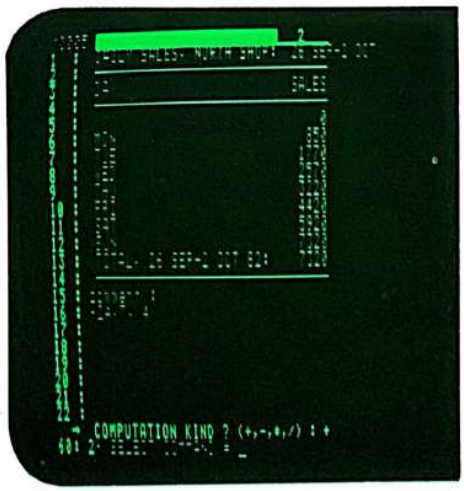
41.2.1 After entering "ACM" and pressing "RETURN", PIPS asks for the MAIN COLUMN number.

41.2.2 The MAIN COLUMN is Column 3.

41.2.3 Now specify the SUB COLUMN.

PIPS is asking you to specify the type of arithmetic to be performed. We're going to enter "+", but note that "(+,-,*,/)" are possible.

If we had specified the same column for both the MAIN COLUMN and the SUB COLUMN:



This specification is convenient in that we don't have to open up a line at the top of the TABLE as we did earlier. Since Line 1 is the first line for both the MAIN COLUMN and SUB COLUMN, it will be included in the calculation.

However, as pointed out earlier, the original data of the SUB COLUMN is written over by the running total as the command is executed.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

A C M ACCUMULATE

PROMPTS A C M

```
* SELECT COMMAND = ACM
MAIN COLUMN NO. :
SUBORDINATE COLUMN NO. :
COMPUTATION KIND ? (+,-,*,/):
* SELECT COMMAND =
```


ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO ---110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

MAR MATRIX READ

MAW MATRIX WRITE

42.1 THE MAR COMMAND (Matrix Read)

The MAR Command is used to copy a whole line or part of a line (matrix position) from the MASTER BUFFER into temporary memory.

Once in memory, this data can be retrieved at any time, as many times as desired, with the MAW Command.

Data copied to temporary memory remains there until another line of data or data matrix is copied with the MAR Command or until power to the system is interrupted.

The MAR Command is useful for carrying calculation results from one PAGE to another in calculations stretching over several PAGES. If we wanted to execute the ACM Command over several PAGES, for example, the MAR Command would allow us to copy the grand total to the next PAGE where we could continue with the calculation of running totals.

NOTE: THE MAR COMMAND CAN BE EXECUTED ONLY ON A TABLE IN THE MASTER BUFFER.

43.1 THE MAW COMMAND (Matrix Write)

The MAW Command takes data which has been copied into temporary memory with the MAR Command and writes it into a specified location in the MASTER BUFFER.

When an ENTIRE LINE has been copied with MAR prior to execution of MAW, that data line is always inserted before the first existing data line of the new TABLE. When data from a matrix position has been read into temporary memory with MAR, the MAW Command allows you to write this data to a matrix position in another TABLE.

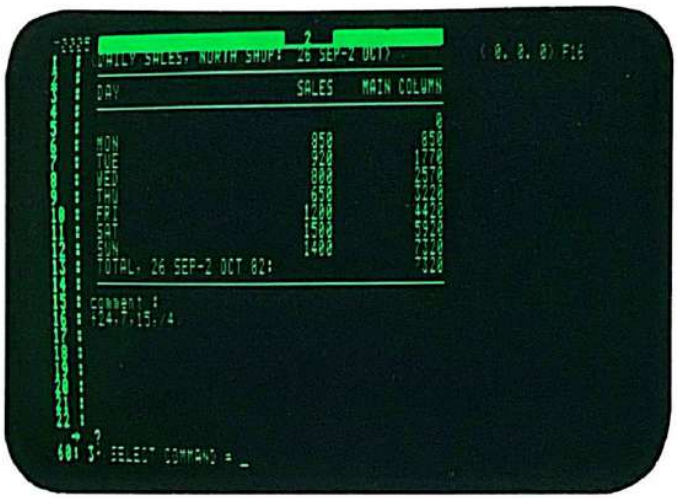
G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

MAR MATRIX READ

43.2 MAR AND MAW COMMAND EXECUTION

In this example (PAGE 5), we've just calculated a running total for sales with the ACM Command.

We want to take Line 13 (the total for 26 Sep-Oct 82) and copy it in temporary memory. Then when we go to another PAGE, we'll be able to write this line in the first line of the TABLE with the MAW Command.



43.2.1 MAR COMMAND EXECUTION: READING A COMPLETE LINE

(1) * SELECT COMMAND = MAR

(2) READ LINE, MATRIX ? (L,M) : L

After pressing "RETURN", PIPS will ask us if we want to copy the entire line by specifying "L" or copy only part of a line by specifying "M (matrix position)".

When an entire line is to be copied, enter "L".

(3) LINE NO. (Tn) : 13

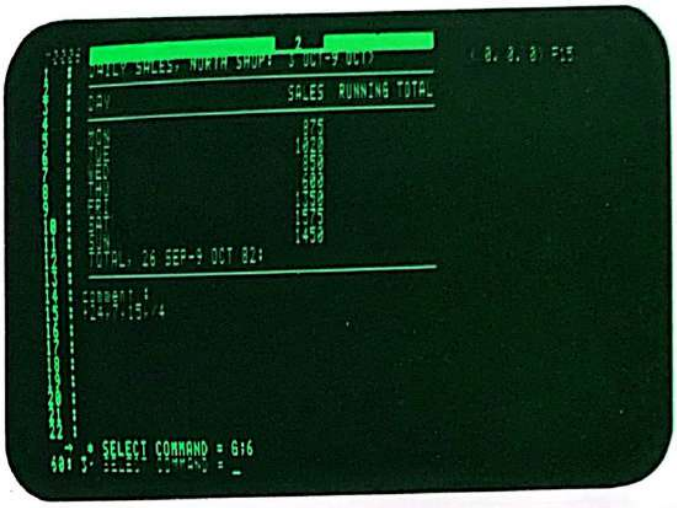
Another prompt will appear, asking for the number of the line to be copied.

Line 13 is now in temporary memory and can be written to a new TABLE with the MAW Command. Go on to the next section.

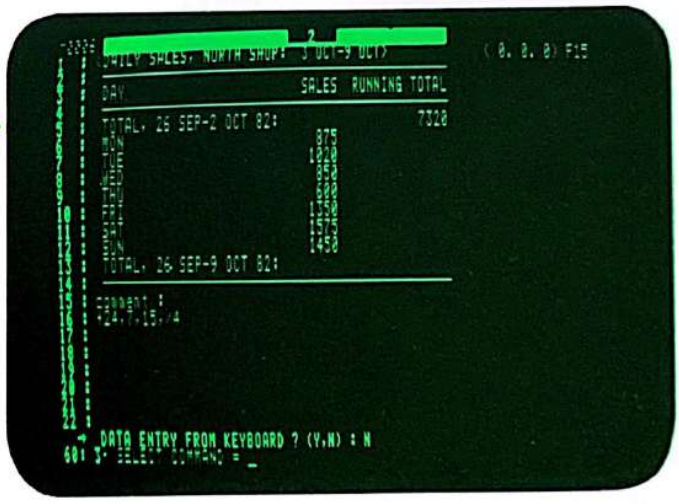
ACM--143 | BF----105 | CA-D---58 | CF---55 | CT-------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D-------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

43.2.2 MAW COMMAND EXECUTION: WRITING A LINE TO A TABLE

Get PAGE 6 into the MASTER BUFFER, enter "MAW", then press "RETURN".



By entering "N" to the "ENTRY FROM KEYBOARD ?" prompt, the line previously read by the MAR Commmand will be inserted before the first data line of the TABLE. The "Y" response to the "DATA ENTRY FROM KEYBOARD ?" prompt will be explained at the end of this section.



G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

MAR MATRIX READ

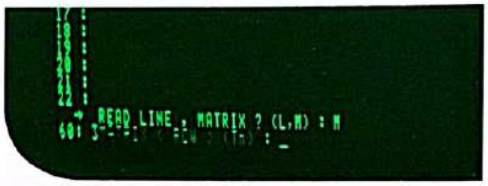
43.2.3 MAR EXECUTION: READING A MATRIX POSITION

In this example, we have once again executed the ACM Command on PAGE 5. With the MAR Command we can read only the total at matrix position 13,3 and write this data (by matrix) to TABLE 6 with the MAW Command.

(1) * SELECT COMMAND = MAR

(2) READ LINE, MATRIX ? (L,M) : M

Enter "M" to specify reading for a matrix position.



(3) MATRIX <ROW> (Tn) : 13

Enter the line number of the matrix position.

(4) MATRIX <COLUMN> (Tn) : 3

Specify the column number for the matrix position. PIPS will return to the COMMAND MODE.

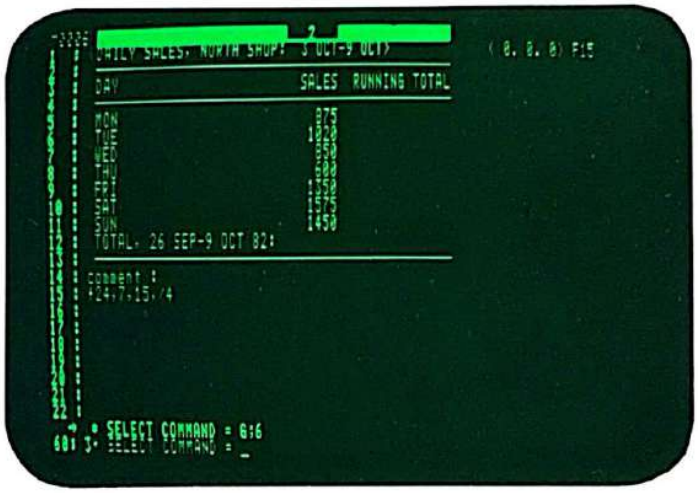
* SELECT COMMAND =

The data in temporary memory can now be written to a new TABLE (PAGE 6) by specifying a new location by line and column number.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

MATRIX WRITE M A W

NOTE: WHEN WRITING DATA TO A MATRIX POSITION IN THE FIRST LINE OF A TABLE, PIPS WILL NOT INSERT AUTOMATICALLY AS IT DOES WHEN WRITING A COMPLETE LINE FROM TEMPORARY MEMORY. THEREFORE, IF DATA IS TO BE INSERTED AND USED FOR CALCULATING RUNNING TOTALS, WE MUST INSERT A LINE.



G ; 6 RETURN

I R ; 5 RETURN

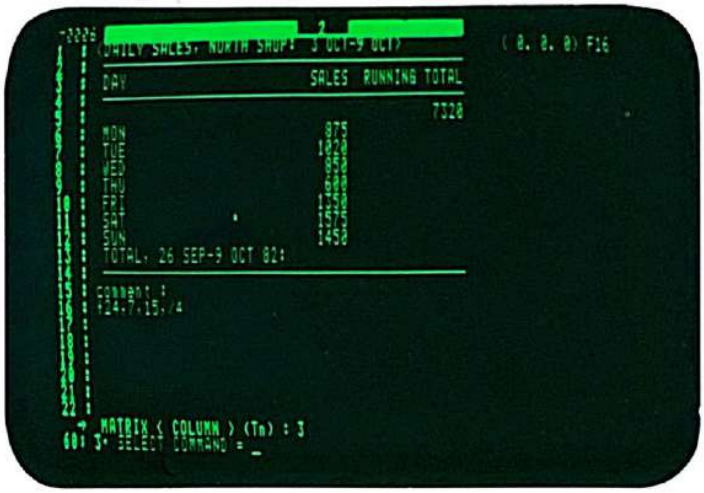
43.2.4 MAW EXECUTION: WRITING TO A MATRIX POSITION

(1) * SELECT COMMAND = MAW
DATA ENTRY FROM KEYBOARD (Y,N) : N

The new data location is specified by entering the appropriate line and column numbers.

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

(2) MATRIX <ROW> (Tn) : 5
MATRIX <COLUMN> (Tn) : 3
* SELECT COMMAND =



We could now continue with the running total calculation with the total from PAGE 5.

43.2.5 MAW COMMAND: KEYBOARD ENTRY

If we execute the MAW Command and enter "Y" to the "KEYBOARD ENTRY ?" prompt, we can make an entry from the keyboard, either to correct a previous entry or to write a new entry in the TABLE.

(1) * SELECT COMMAND = MAW

(2) DATA ENTRY FROM KEYBOARD ? (Y,N) : Y

(3) MATRIX <ROW> (Tn) :
MATRIX <COLUMN> (Tn) :

The specifications to these prompts tell PIPS where you want to make the data entry on the TABLE. A reverse field bar will appear at the matrix position specified. You can then go ahead and make your entry.

When you have finished the correction or new entry and press "RETURN", PIPS will return to the COMMAND MODE.

NOTE: THE "Y" BRANCH OF THE MAW COMMAND IS NOT RELATED IN ANY WAY WITH WRITING DATA FROM TEMPORARY MEMORY. IT IS ONLY A WAY TO MAKE NEW DATA ENTRIES IN A TABLE OR TO MAKE CORRECTIONS

MAR MATRIX READ

MAW MATRIX WRITE

PROMPTS MAR MAW

```
* SELECT COMMAND = MAR
READ LINE, MATRIX ? (L,M) : L
LINE NO. (Tn) :
* SELECT COMMAND =

* SELECT COMMAND = MAW
DATA ENTRY FROM KEYBOARD ? (Y,N) :
* SELECT COMMAND =



* SELECT COMMAND = MAR
READ LINE , MATRIX ? (L,M) : M
MATRIX ,ROW. (Tn) :
MATRIX ,COLUMN. (Tn) :
* SELECT COMMAND =

* SELECT COMMAND = MAW
DATA ENTRY FROM KEYBOARD ? (Y,N) : N
MATRIX ,ROW. (Tn) :
MATRIX ,COLUMN. (Tn) :
* SELECT COMMAND =



* SELECT COMMAND = MAW
DATA ENTRY FROM KEYBOARD ? (Y,N) : Y
MATRIX ,ROW. (Tn) :
MATRIX ,COLUMN. :
(Reverse field bar appears at specified location.)
Make new entry then press "RETURN"
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

XIV. SORTING DATA

SORT

NEW FORMAT

SUB TOTAL

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF---247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB ----76 | ST---170 | UPD--195
GR---119 | IN----282 | MAR---147 | NF---166 | PF -------245 | SET---89 | TD---285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

44.1 THE SORT COMMAND

The SORT Command rearranges data in the TABLE in the order specified. Both alpha and numeric data may be SORTED. Numeric data may be SORTED in either ascending (smallest to largest) or descending (largest to smallest) order. In the case of alphabetic data, an ascending SORT will rearrange the data alphabetically from A to Z, while a descending alpha SORT will rearrange the data from Z to A.

44.2 SORT COMMAND EXECUTION

The names in this TABLE have not been entered in any particular order:

```
1  : <EMPLOYEES-NORTH SHOP>
2  :
3  :  NUMBER   NAME                  TELEPHONE   DAY OFF
4  :
5  :  N1       HARRIS, JUDY          821-7432        WED
6  :  N2       BLOOM, ALAN           782-8756        FRI
7  :  N3       MARSHALL, TOM         879-5239        SUN
8  :  N4       SILKOFF, BILL         345-1287        THU
9  :  N5       KISMAN, MIKE          631-6745        SUN
10 :  N6       JONES, BILLIE         822-5829        SAT
11 :  N7       HARRIS, SALLI         721-9078        MON
12 :  N8       ZOLLINGER, LINDA      731-4561        WED
13 :  N9       HEWITT, DENNIS        721-8937        SUN
14 :  N10      BROWNYER, BOB         732-2965        SUN
15 :
16 : comment :
17 : f8,20,11,9,/4
```

By specifying an ascending alpha SORT on Column 2, we can make a new TABLE with the names in alphabetical order:

```
1  : <EMPLOYEES-NORTH SHOP>
2  :
3  :  NUMBER   NAME                  TELEPHONE   DAY OFF
4  :
5  :  N2       BLOOM, ALAN           782-8756        FRI
6  :  N10      BROWNYER, BOB         732-2965        SUN
7  :  N1       HARRIS, JUDY          821-7432        WED
8  :  N7       HARRIS, SALLI         721-9078        MON
9  :  N9       HEWITT, DENNIS        721-8937        SUN
10 :  N6       JONES, BILLIE         822-5829        SAT
11 :  N5       KISMAN, MIKE          631-6745        SUN
12 :  N3       MARSHALL, TOM         879-5239        SUN
13 :  N4       SILKOFF, BILL         345-1287        THU
14 :  N8       ZOLLINGER, LINDA      731-4561        WED
15 :
16 : comment :
17 : f8,20,11,9,/4
```


G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

SORT

Follow the prompts and explanations below.

44.2.1 Execute.

G;3

* SELECT COMMAND = SORT

44.2.2 PAGE NUMBER(S) ? ((WITH(,))B,C) : B

(1) A "B" entry in response to this prompt tells PIPS to conduct the SORT on a TABLE in the MASTER BUFFER.

(2) A "C" entry here would tell PIPS to conduct the SORT over PAGES previously specified with the SFN Command. Refer to the section on the SFN Command.

(3) To specify a SORT over several PAGES, enter the beginning and ending PAGE numbers separated by a comma. For example, "15,20 RETURN" would tell PIPS to conduct the SORT from PAGE 15 to PAGE 20.

A SORT of 4 or less PAGES of data is done in working storage and is quite fast. A SORT of over 4 PAGES is somewhat slower.

NOTE: REFER TO THE FOLLOWING TABLE. IF THE NUMBER OF PAGES TO BE SORTED EXCEEDS 12 (FOR THE M23 MARK III), A PORTION OF THE SORT WILL CARRIED OUT IN THE MASTER FILE. THIS MEANS THAT PORTIONS OF THE DATA IN ITS ORIGINAL FORM IN THE MASTER FILE MAY BE LOST. IT IS GOOD PRACTICE TO MAKE A COPY OF THE ORIGINAL DATA DISKETTE BEFORE EXECUTING SORT, EVEN WHEN THE NUMBER OF PAGES SPECIFIED IS RELATIVELY SMALL. (REFER TO THE "PBACK" SECTION OF THIS GUIDE.)

LOCATION OF SORT BY NUMBER OF PAGES*			
MARK I	MARK III	MARK V	
1-4	1-4	1-4	The SORT is carried out in WORKING STORAGE.
5-11	5-12	5-51	The SORT is carried out in WORKING STORAGE and the SUB BUFFER.
12-22	13-25	52-96	The SORT is carried out in WORKING STORAGE, the SUB BUFFER, and part of the MASTER FILE. If you are sorting this many PAGES, portions of your orginal data may be lost.
*PAGE FIGURES ARE BASED ON A 150 CHARACTER, 60-LINE PAGE			

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

44.2.3 COLUMN NO. : 2

The "COLUMN NO." prompt asks for the number of the column upon which the SORT will be conducted.

Up to 5 columns can be specified, but for now, we will SORT on one column only.

44.2.4 ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A

PIPS will ask if the SORT will be ascending or descending. If the column specified contains alpha data, "A" (ascending) or "D" (descending) may be entered. If the data is numerical, then "A/N" or "D/N" must be entered.

44.2.5 COLUMN NO. : E

When you are finished with column specifications, enter "E".

44.2.6 PRINT ? (Y,N) : Y

Specify whether the results of the SORT are to be printed out on the printer, or simply displayed on the screen. An "N" specification will only display the results of the SORT on the CRT.

NOTE: IF YOU DECIDE NOT TO HAVE THE RESULTS PRINTED OUT, THE RESULTS OF THE SORT WILL BE DISPLAYED ON THE CRT. HOWEVER, IF THE RESULTS ARE LONGER THAN ONE PAGE, EACH SUCCEEDING PAGE WILL BE WRITTEN OVER THE PRECEDING PAGE ON THE CRT AND NO COMPLETE RECORD OF THE SORT WILL REMAIN.

44.2.7 FILE CREATION ? (Y,N) : N

To make a permanent record of the SORT, enter "Y" then press "RETURN". "FILE FROM:" will be displayed as the next prompt, to which you should respond with a single entry, the starting PAGE number of the PAGE in the MASTER FILE or SUB FILE where you want to store the results of the SORT.

When the SORT is conducted over a block of several PAGES and you want to create a file for the results, you need only specify the starting PAGE number of the block.

G---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF------- 245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

SORT

NOTE: ONCE YOU SPECIFY A STARTING PAGE NUMBER, AND EXECUTE THE SORT, PIPS WILL WRITE THE RESULTS AUTOMATICALLY FROM THAT PAGE. BEFORE EXECUTION, BE SURE THE PAGE SPECIFIED AND THE SUCCEEDING PAGES ARE EMPTY OR CONTAIN DATA WHICH IS NO LONGER NEEDED.

If no record is needed, enter "N".

44.2.8 UP TO LINE : 60

Now PIPS wants to know how to write the results of the SORT. By entering a number to this prompt, you can determine the number of lines to be written in each TABLE containing the results of the SORT.

For example, if we were doing a SORT over four PAGES, each containing 60 lines (the maximum), we could write the results on consecutive pages only half their original size by entering "30" to this prompt and pressing "RETURN". Also,

(1) If "Y" has been specified to the "PRINT ?:" prompt, PIPS will print the results on eight consecutive pages, each containing a TABLE of 30 lines.

(2) If "Y" has been entered to the "FILE CREATION" prompt, PIPS will file the results of the SORT in the MASTER FILE on eight consecutive PAGES, each containing a TABLE of 30 lines.

NOTE: THE NUMBER SPECIFIED HERE DETERMINES THE TOTAL NUMBER OF LINES FROM THE FIRST LINE OF THE HEADING TO THE BOTTOM OF THE TABLE, NOT THE NUMBER OF DATA LINES.

In the present example, the TABLE is very short, so any number greater than the total number of lines in this TABLE will display the entire TABLE on the CRT.

```
1  : <EMPLOYEES-NORTH SHOP>
2  :
3  : NUMBER  NAME
4  :
5  : N2      BLOOM, ALAN
6  : N10     BROWNYER, BOB
7  : N1      HARRIS, JUDY
8  : N7      HARRIS, SALLI
9  : N9      HEWITT, DENNIS
10 : N6      JONES, BILLIE
11 : N5      KISMAN, MIKE
12 : N3      MARSHALL, TOM
13 : N4      SILKOFF, BILL
14 : N8      ZOLLINGER, LINDA
15 :
16 : comment :
17 : f8,20,11,9,/4
```

44.2.9 Follow the prompts and responses below as we run an ascending numerical SORT on Column 3 of PAGE 7, listing all these customers by height from the shortest to tallest. The entries in Column 3 represent the number of inches over five feet, e.g. a "3" entry means that customer is 5 feet, 3 inches tall.

```
1  : <CUSTOMER LIST 15>                                    ( 0, 0, 0) F35
2  :
3  : NAME                 SEX  HT   WT  BIRTH DATE      ADDRESS          TELEPHONE   SHOP
4  :
5  : TAYLOR, CHERYL        F   22  123  25/10/60    7495 LAWYER RD.     774-1737   NORTH
6  : WRIGHT, REGGIE        M    5  145  28/02/42 5516 SPRINGDALE RD.    284-2287   WEST
7  : WINTERS, KARL         M   14  180  21/11/50       5 MOYER PL.      231-4498   EAST
8  : ROBERTS, MARSHA       F    3  115  08/07/38     3618 ROBB AVE.     232-3240   EAST
9  : PITMAN, LOUIS         M    1  134  28/02/44   454 EASTERN AVE.     229-2376   WEST
10 : TURNAU, ALMA          F    3  102  01/08/62    330 FOREST AVE.     941-9834   WEST
11 : FOREACRE, CHRIS       F    2  106  23/11/64  1933 WAYLAND AVE.     328-1734   WEST
12 : SMITH, CHERYL         F    2  104  14/03/30   1473 EATON AVE.      874-6747   SOUTH
13 : SEAL, KATHY           F    3  110  12/04/48    6520 MEIS AVE.      232-1589   NORTH
14 : RUMPKE, BERNARD       M   16  210  23/06/32 1234 NORTH BEND RD.    874-8221   SOUTH
15 : HUXEL, GUY            M    2  150  15/02/54     207 HOLLY LN.      861-7339   WEST
16 : PEABODY, ANN          F    8  115  18/09/50  2201 TOWNHILL RD.     531-8890   NORTH
17 : RAITT, TERRY          M    9  160  03/02/48   5 GRIFFITHS AVE.     922-0075   SOUTH
18 : SEAL, RICHARD         M    1  178  13/01/49    6520 MEIS AVE.      232 1589   WEST
19 : HUMES, THOMAS         M    9  220  12/01/49  2219 MADISON AVE.     661-9780   NORTH
20 : GITTLEMAN, BETTY      F    4  120  23/08/29      12 CINDY LN.      422-7890   EAST
21 : MYERS, PEGGY          F    3  109  13/01/40   1419 SUTTON DR.      876-5589   NORTH
22 : MARSHALL, NANCY       F    3  116  24/03/45   1512 BEECH AVE.      749-3398   SOUTH
23 : GOLDBERG, JODY        M    8  122  25/07/32     408 BAUER RD.      231-8907   SOUTH
24 : RUSH, BARBARA         F   10  140  31/05/44   9831 CAPSTAN DR.     777-1889   SOUTH
25 : WELLS, DANIEL         M   15  145  31/12/55     1086 LANNY LN.     221-8140   SOUTH
26 : MOUCH, WILLIAM        M   14  220  23/03/21 2186 HARRISON AVE.     231-6448   WEST
27 : JACKSON, HOLLY        F   11  125  19/08/44   5151 CAPITOL DR.     285-2299   WEST
28 : GREENWELL, STEVE      M   15  250  23/09/48     2134 AIKENSIDE     631-9021   NORTH
29 : HART, BUDDY           M    8  152  09/05/59     789 WILFORD RD.    229-3880   EAST
30 : FRANKL, MARGARET      F    3  115  16/06/37  1220 GULFPORT DR.     821-4589   EAST
31 : TORREANO, MICHAEL     M   13  195  12/03/48     6906 THORNDIKE     332-8970   NORTH
32 : REIS, JANE            F    1  117  15/09/52   4639CLAYTON DR.      821-3387   WEST
33 :
34 : comment :
35 : f20.5,4.5,12.20,11.7./4
```

```
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH(,)),B,C) : 7
COLUMN NO. : 3
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A/N
COLUMN NO. : E
PRINT? (Y,N) : Y
FILE CREATION ? (Y,N) : N .
UP TO LINE : 60
* SELECT COMMAND :
```

```
1  : <CUSTOMER LIST 15>                                    ( 0, 0, 0) F35    PAGE  1
2  :
3  : NAME                  SEX  HT   WT   BIRTH DATE          ADDRESS          TELEPHONE   SHOP
4  :
5  : SEAL, RICHARD          M    1   178   13/01/49        6520 MEIS AVE.     232 1589    WEST
6  : REIS, JANE             F    1   117   15/09/52       4639CLAYTON DR.     821-3387    WEST
7  : PITMAN, LOUIS          M    1   134   28/02/44        454 EASTERN AVE.   229-2376    WEST
8  : FOREACRE, CHRIS        F    2   106   23/11/64      1933 WAYLAND AVE.    328-1734    WEST
9  : HUXEL, GUY             M    2   150   15/02/54          207 HOLLY LN.    861-7339    WEST
10 : SMITH, CHERYL          F    2   104   14/03/30       1473 EATON AVE.     874-6747    SOUTH
11 : TURNAU, ALMA           F    3   102   01/08/62        330 FOREST AVE.    941-9834    WEST
12 : SEAL, KATHY            F    3   110   12/04/48        6520 MEIS AVE.     232-1589    NORTH
13 : MARSHALL, NANCY        F    3   116   24/03/45       1512 BEECH AVE.     749-3398    SOUTH
14 : ROBERTS, MARSHA        F    3   115   08/07/38        3618 ROBB AVE.     232-3240    EAST
15 : MYERS, PEGGY           F    3   109   13/01/40       1419 SUTTON DR.     876-5589    NORTH
16 : FRANKL, MARGARET       F    3   115   16/06/37      1220 GULFPORT DR.     821-4589    EAST
17 : GITTLEMAN, BETTY       F    4   120   23/08/29          12 CINDY LN.      422-7890    EAST
18 : WRIGHT, REGGIE         M    5   145   28/02/42 5516 SPRINGDALE RD.        284-2287    WEST
19 : PEABODY, ANN           F    8   115   18/09/50    2201 TOWNHILL RD.       531-8890    NORTH
20 : HART, BUDDY            M    8   152   09/05/59      789 WILFORD RD.       229-3880    EAST
21 : GOLDBERG, JODY         M    8   122   25/07/32        408 BAUER RD.       231-8907    SOUTH
22 : HUMES, THOMAS          M    9   220   12/01/49     2219 MADISON AVE.      661-9780    NORTH
23 : RAITT, TERRY           M    9   160   03/02/48      5 GRIFFITHS AVE.      922-0075    SOUTH
24 : RUSH, BARBARA          F   10   140   31/05/44       9831 CAPSTAN DR.     777-1889    SOUTH
25 : JACKSON, HOLLY         F   11   125   19/08/44       5151 CAPITOL DR.     285-2299    WEST
26 : TORREANO, MICHAEL      M   13   195   12/03/48       6906 THORNDIKE       332-8970    NORTH
27 : WINTERS, KARL          M   14   180   21/11/50           5 MOYER PL.      231-4498    EAST
28 : MOUCH, WILLIAM         M   14   220   23/03/21   2186 HARRISON AVE.       231-6448    WEST
29 : GREENWELL, STEVE       M   15   250   23/09/48        2134 AIKENSIDE      631-9021    NORTH
30 : WELLS, DANIEL          M   15   145   31/12/55         1086 LANNY LN.     221-8140    SOUTH
31 : RUMPKE, BERNARD        M   16   210   23/06/32 1234 NORTH BEND RD.        874-8221    SOUTH
32 : TAYLOR, CHERYL         F   22   123   25/10/60       7495 LAWYER RD.      774-1737    NORTH
33 :
34 : comment :
35 : f20,5,4,5,12,20,11,7,/4
```

44.3 MULTI-SORT

In the execution of the SORT Command, up to 5 columns can be specified for multiple SORTS. If 2 columns are specified, for instance, PIPS will SORT the first column and re-group the data. The SORT specified for the second column will then be executed within these groups.

In the next example we've taken a list of customers and first grouped them together as male or female, then within these groups we've listed men and women according to their height.

We wanted to list males first so we had to first specify a descending alpha SORT on Column 2. To list both men and women within their respective groups according to height, we then specified an ascending numerical SORT on Column 3.

When a SORT is to be conducted over several PAGES, after specifying the PAGE numbers and pressing "RETURN", the first PAGE of the block will be displayed automatically on the CRT.

You'll notice that the title of the TABLE printed containing the results of the SORT is the same as that of the last PAGE of the specified block of PAGES.

SORT

To specify a new title and comments for the new TABLES containing the results of the SORT, get the last PAGE of the block into the MASTER BUFFER, change its title and comments and then put it back into the MASTER FILE. When the SORT is executed, it will copy the new title and comments on the last PAGE of the block and write them to each PAGE of the new TABLES as they are printed or written to new PAGES in the MASTER FILE.

<CUSTOMER LIST 15> (0. 0. 0) F35 PAGE 7

NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
TAYLOR, CHERYL	F	22	123	25/10/60	7495 LAWYER RD.	774-1737	NORTH
WRIGHT, REGGIE	M	5	145	28/02/42	5516 SPRINGDALE RD.	284-2287	WEST
WINTERS, KARL	M	14	180	21/11/50	5 MOYER PL.	231-4498	EAST
ROBERTS, MARSHA	F	3	115	08/07/38	3618 ROBB AVE.	232-3240	EAST
PITMAN, LOUIS	M	1	134	28/02/44	454 EASTERN AVE.	229-2376	WEST
TURNAU, ALMA	F	3	102	01/08/62	330 FOREST AVE.	941-9834	WEST
FOREACRE, CHRIS	F	2	106	23/11/64	1933 WAYLAND AVE.	328-1734	WEST
SMITH, CHERYL	F	2	104	14/03/30	1473 EATON AVE.	874-6747	SOUTH

<CUSTOMER LIST 16> (0. 0. 0) F32 PAGE 8

NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
MARLATTE, ROGER	M	9	145	03/02/34	2356 PARK AVE.	671-0936	SOUTH
FRUMP, ALICE	F	4	110	02/01/62	3500 ROBROY DR.	271-9372	EAST
TAKEUCHI, STEVEN	M	7	178	02/06/48	2710 REUBERG AVE.	671-0022	EAST
WOODYARD, MELISSA	F	2	116	06/12/47	1324 HILLCREST DR.	231-4592	NORTH
SALYERS, GEORGETTA	F	7	150	04/04/44	34 34 W. 71ST ST.	531-9832	WEST
KING, REBECCA	F	4	135	09/07/40	63 JOLAIN DR.	738-3816	EAST
COLE, LOUIS	M	5	160	04/08/37	633 BRANDY WAY	791-9284	SOUTH
BURESS, BARRY	M	15	185	08/02/41	506 RIDDLE RD.	251-3826	SOUTH

<CUSTOMER LIST 17> (0. 0. 0) F36 PAGE 9

NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
FISHER, LYNN	F	2	102	24/07/42	43 EAST KNOLL CT.	661-8361	NORTH
STEVENSON, SUE	F	1	110	16/12/45	105 WELLINGWOOD	553-8351	SOUTH
BLOCK, LEE	F	1	115	08/06/38	444 PROBASCO	874-8361	EAST
SEBASTIAN, GUNTHER	M	12	205	04/05/58	7209 PLAINFIELD	471-1528	EAST
WALTZ, RON	M	14	210	18/02/55	67 WHITEHALL CR.	961-7222	NORTH
VAN ATTA, KATHY	F	9	125	13/06/48	107 READING RD.	739-1337	SOUTH
BREYLEY, BETTY	F	3	165	18/09/48	30 VINE ST.	231-2442	WEST
TRUJILLO, RAYMOND	M	14	186	26/11/30	74 GLORIA AVE.	321-1328	WEST
MILLER, LINDA	F	3	108	25/09/50	3425 SHANNON	777-1122	EAST
COX, JEFFERY	M	9	158	15/08/52	132 DONALDSON RD.	821-7722	NORTH
TRACY, TRENT	M	12	205	03/02/47	29 VINE STREET	231-2441	EAST
HARRISON, SHEILA	F	9	125	02/06/56	3302 PHOENIX AVE.	793-4321	WEST
MACSPADDEN, PATSY	F	4	114	24/03/45	5444 GLENMORE	756-1832	WEST
HAYES, DONNA	F	3	108	03/05/44	18 ZUNSEL AVE.	231-2287	NORTH
ZIMMERMAN, JOYCE	F	9	160	12/07/39	3445 ELWYNN DR.	221-6712	EAST
CROMWELL, MYRTLE	F	5	130	23/02/23	74 GLORIA AVE.	782-2163	SOUTH
RICHARDSON, ALTHEA	F	4	116	04/01/38	509 RIDDLE RD.	825-5511	WEST
DAVIDSON, CLEAT	M	8	160	16/07/28	871 HANSON DR.	271-6227	WEST
HAVERKOS, PAUL	M	7	168	21/01/37	1256 EIGHT MILE RD.	553-8899	NORTH
STAUTZENBACH, JUDY	F	3	116	02/06/44	641 OAK AVE.	242-1111	SOUTH
PECK, NANCY	F	3	119	19/03/40	4254 ALLENDORF	471-2001	SOUTH
LEMON, SARA	F	2	115	13/07/37	690 SEAL AVE.	661-6578	SOUTH
PETER, BOB	M	11	187	04/05/49	440 LAFAYETTE RD.	871-7711	EAST
GRANITIER, JUNE	F	8	109	09/02/32	3456 RIDGECLIFFE	774-5588	WEST
LEETH, LARRY	M	9	188	06/09/50	9043 EUCLID AVE.	762-1122	EAST
ST. JOHN, MARSHA	F	2	116	15/10/34	111 CAMPBELL RD.	871-2244	EAST
TIEBOUT, SANDRA	F	5	108	28/03/48	2916 WEAVER RD.	825-2017	SOUTH
TANKERSLEY, MARY	F	9	128	16/08/48	17 VAN KIRK	752-0110	WEST
BENZ, JUDY	F	2	109	14/07/48	132 NORTH BEND RD.	221-0034	EAST

```
comment :
f20,5,4,5,12,20,11,7,/4
```

SORT

```
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH(,)),B,C) : 7,9
COLUMN NO. : 2
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : D
COLUMN NO. : 3
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A/N
COLUMN NO. : E
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE : 60
* SELECT COMMAND =
```

```
1  : <MALES, FEMALES ACCORDING TO HEIGHT>                ( 0. 0. 0) F36    PAGE  1
2  :
3  : NAME                        SEX  HT   WT  BIRTH DATE          ADDRESS          TELEPHONE   SHOP
4  :
5  : SCHWCZ, RAVLI               M    0   225   04/14/48   1012 WEST SEYMOUR       221-9572    WEST
6  : PITMAN, LOUIS               M    1   134   28/02/44    454 EASTERN AVE.       229-2376    WEST
7  : SEAL, RICHARD               M    1   178   13/01/49      6520 MEIS AVE.       232 1589    WEST
8  : HUXEL, GUY                  M    2   150   15/02/54       207 HOLLY LN.       861-7339    WEST
9  : COLE, LOUIS                 M    5   160   04/08/37       633 BRANDY WAY      791-9284    SOUTH
10 : WRIGHT, REGGIE              M    5   145   28/02/42 5516 SPRINGDALE RD.       284-2287    WEST
11 : HAVERKOS, PAUL              M    7   168   21/01/37 1256 EIGHT MILE RD.       553-8899    NORTH
12 : TAKEUCHI, STEVEN            M    7   178   02/06/48   2710 REUBERG AVE.       671-0022    EAST
13 : DAVIDSON, CLEAT             M    8   160   16/07/28      871 HANSON DR.       271-6227    WEST
14 : HART, BUDDY                 M    8   152   09/05/59      789 WILFORD RD.      229-3880    EAST
15 : GOLDBERG, JODY              M    8   122   25/07/32       408 BAUER RD.       231-8907    SOUTH
16 : ORTNER, ROBERT              M    9   185   24/08/31       2110 HARKNESS       661-9371    WEST
17 : MARLATTE, ROGER             M    9   145   03/02/34       2356 PARK AVE.      671-0936    SOUTH
18 : HUMES, THOMAS               M    9   220   12/01/49    2219 MADISON AVE.      661-9780    NORTH
19 : COX, JEFFERY                M    9   158   15/08/52    132 DONALDSON RD.      821-7722    NORTH
20 : RAITT, TERRY                M    9   160   03/02/48     5 GRIFFITHS AVE.      922-0075    SOUTH
21 : LEETH, LARRY                M    9   188   06/09/50     9043 EUCLID AVE.      762-1122    EAST
22 : PETER, BOB                  M   11   187   04/05/49   440 LAFAYETTE RD.       871-7711    EAST
23 : CARPENTER, STANLEY          M   11   198   10/05/45        3455 ELM ST.       232-9581    WEST
24 : TRACY, TRENT                M   12   205   03/02/47       29 VINE STREET      231-2441    EAST
25 : SEBASTIAN, GUNTHER          M   12   205   04/05/58     7209 PLAINFIELD       471-1528    EAST
26 : TORREANO, MICHAEL           M   13
27 : WINTERS, KARL               M   14
28 : WALTZ, RON                  M   14
29 : TRUJILLO, RAYMOND           M   14
30 : MOUCH, WILLIAM              M   14
31 : GREENWELL, STEVE            M   15
32 : WELLS, DANIEL               M   15
33 : BURESS, BARRY               M   15
34 : RUMPKE, BERNARD             M   16
35 : HARPER, LARRY               M   16
36 : SCHEVE, TINA                F    0
37 : REIS, JANE                  F    1
38 : DRACH, CHRIS                F    1
39 : EGGERMAN, RINI              F    1
40 : STEVENSON, SUE              F    1
41 : BURRESS, DIANNE             F    1
42 : ROTH, BARBARA               F    1
43 : BLOCK, LEE                  F    1
44 : FOREACRE, CHRIS             F    2
45 : FISHER, LYNN                F    2
46 : BENZ, JUDY                  F    2
47 : LEMON, SARA                 F    2
48 : ST. JOHN, MARSHA            F    2
49 : SMITH, CHERYL               F    2
50 : WOODYARD, MELISSA           F    2
51 : MILLER, LINDA               F    3
52 : BREYLEY, BETTY              F    3
53 : FRANKL, MARGARET            F    3
54 : TURNAU, ALMA                F    3
55 : MYERS, PEGGY                F    3
56 : HARRISON, LINDA             F    3
57 : KING, PATRICIA              F    3
58 :
59 : comment :
60 : f20,5,4,5,12,20,11,7,/4
```

```
1  : <MALES, FEMALES ACCORDING TO HEIGHT>                ( 0. 0. 0) F36
2  :
3  : NAME                        SEX  HT   WT  BIRTH DATE          ADDRESS
4  :
5  : SEAL, KATHY                 F    3   110   12/04/48      6520 MEIS AVE.
6  : PECK, NANCY                 F    3   119   19/03/40      4254 ALLENDORF
7  : STAUTZENBACH, JUDY          F    3   116   02/06/44       641 OAK AVE.
8  : MARSHALL, NANCY             F    3   116   24/03/45      1512 BEECH AVE.
9  : ROBERTS, MARSHA             F    3   115   08/07/38      3618 ROBB AVE.
10 : HAYES, DONNA                F    3   108   03/05/44      18 ZUNSEL AVE.
11 : FRUMP, ALICE                F    4   110   02/01/62      3500 ROBROY DR.
12 : AHERN, SARA LOU             F    4   220   24/05/46      233 SOUTH BEND
13 : KNOWLIN, VICKI              F    4   109   14/05/46      6969 NEWPORT NEWS
14 : FOLEY, VICKI                F    4   109   04/05/46       14 VINE ST.
15 : RICHARDSON, ALTHEA          F    4   116   04/01/38      509 RIDDLE RD.
16 : KING, REBECCA               F    4   135   09/07/40      63 JOLAIN DR.
17 : MACSPADDEN, PATSY           F    4   114   24/03/45      5444 GLENMORE
18 : GITTLEMAN, BETTY            F    4   120   23/08/29       12 CINDY LN.
19 : RAITT, BONNIE               F    5   120   30/09/80      5843 CHARTEROAK
20 : TIEBOUT, SANDRA             F    5   108   28/03/48      2916 WEAVER RD.
21 : CROMWELL, MYRTLE            F    5   130   23/02/23       74 GLORIA AVE.
22 : SALYERS, GEORGETTA          F    7   150   04/04/44    34 34 W. 71ST ST.
23 : PEABODY, ANN                F    8   115   18/09/50      2201 TOWNHILL RD.
24 : BUTCHKES, BRYNA             F    8   109   18/04/55      400 COMPTON LAKE
25 : GRANITIER, JUNE             F    8   109   09/02/32      3456 RIDGECLIFFE
26 : VAN ATTA, KATHY             F    9   125   13/06/48      107 READING RD.
27 : TANKERSLEY, MARY            F    9   128   16/08/48       17 VAN KIRK
28 : ZIMMERMAN, JOYCE            F    9   160   12/07/39      3445 ELWYNN DR.
29 : HARRISON, SHEILA            F    9   125   02/06/56      3302 PHOENIX AVE.
30 : RUSH, BARBARA               F   10   140   31/05/44      9831 CAPSTAN DR.
31 : JACKSON, HOLLY              F   11   125   19/08/44      5151 CAPITOL DR.
32 : FINKLEMAN, LINDA            F   12   112   15/04/57       105 JULEP LN.
33 : TAYLOR, CHERYL              F   22   123   25/10/60      7495 LAWYER RD.
34 :
35 : comment :
36 : f20,5,4,5,12,20,11,7,/4
```

ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT -------- 41	DL ---- 49	END --- 4
AS --- 267	BS ----74	CA-U -- 214	CM -- 275	CTRL ----237	DRL---64	F ----- 97
AU#--270	BT ----21	CAL ---- 97	COL -- 87	D -------- 97	ED---223	FO ---110
B ---- 33	CA-A -- 209	CC -----42	CS---185	DC ------ 53	EF---226	FT----248

PROMPTS S O R T

```
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH(,)),B,C) :
COLUMN NO. :
ASCENDING OR DESCENDING  ? (A,D,(/N, IF NUMERICAL)) :
COLUMN NO. :
ASCENDING OR DESCENDING ? (A,D,(/N,IF NUMERICAL)):
:
:
COLUMN NO. : E
PRINT ? (Y,N,) : Y                PRINT  (Y,N) : N
FILE CREATION ? (Y,N) : Y         FILE CREATION ? (Y,N) : N
FILE FROM:                        UP TO LINE:
UP TO LINE:                       * SELECT COMMAND =
* SELECT COMMAND =
```


G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O----9	PROTECT---276	SFN--203	TRM---75	

N F NEW FORMAT

45.1 THE NF COMMAND (New Format)

The NF Command will change the FORMAT of a TABLE WITHOUT MOVING THE DATA. With this command, a new column can be inserted into a TABLE, two columns combined into one, or one column split into two. For example, a column which contains both alpha and numeric entries can be split into two columns in order to carry out more efficient multi-sorts.

45.2 NF COMMAND EXECUTION

With the NF Command a new column can be added to the immediate right of the name entries (Column 1) so we can give each customer a number. This can be done without disturbing the positions of any of the data in the original TABLE.

Follow the prompts and explanations below.

45.2.1 Execute.

```
1  : <CUSTOMER LIST 15>                                    ( 0. 0. 0) F35
2  :
3  : NAME                  SEX  HT   WT   BIRTH DATE          ADDRESS        TELEPHONE   SHOP
4  :
5  : TAYLOR, CHERYL         F   22   123    25/10/60      7495 LAWYER RD.   774-1737   NORTH
6  : WRIGHT, REGGIE         M    5   145    28/02/42 5516 SPRINGDALE RD.   284-2287   WEST
7  : WINTERS, KARL          M   14   180    21/11/50         5 MOYER PL.    231-4498   EAST
8  : ROBERTS, MARSHA        F    3   115    08/07/38      3618 ROBB AVE.    232-3240   EAST
9  : PITMAN, LOUIS          M    1   134    28/02/44    454 EASTERN AVE.    229-2376   WEST
10 : TURNAU, ALMA           F    3   102    01/08/62     330 FOREST AVE.    941-9834   WEST
11 : FOREACRE, CHRIS        F    2   106    23/11/64  1933 WAYLAND AVE.     328-1734   WEST
12 : SMITH, CHERYL          F    2   104    14/03/30    1473 EATON AVE.     874-6747   SOUTH
13 : SEAL, KATHY            F    3   110    12/04/48     6520 MEIS AVE.     232-1589   NORTH
14 : RUMPKE, BERNARD        M   16   210    23/06/32 1234 NORTH BEND RD.    874-8221   SOUTH
15 : HUXEL, GUY             M    2   150    15/02/54      207 HOLLY LN.     861-7339   WEST
16 : PEABODY, ANN           F    8   115    18/09/50  2201 TOWNHILL RD.     531-8890   NORTH
17 : RAITT, TERRY           M    9   160    03/02/48   5 GRIFFITHS AVE.     922-0075   SOUTH
18 : SEAL, RICHARD          M    1   178    13/01/49     6520 MEIS AVE.     232 1589   WEST
19 : HUMES, THOMAS          M    9   220    12/01/49  2219 MADISON AVE.     661-9780   NORTH
20 : GITTLEMAN, BETTY       F    4   120    23/08/29       12 CINDY LN.     422-7890   EAST
21 : MYERS, PEGGY           F    3   109    13/01/40    1419 SUTTON DR.     876-5589   NORTH
22 : MARSHALL, NANCY        F    3   116    24/03/45    1512 BEECH AVE.     749-3398   SOUTH
23 : GOLDBERG, JODY         M    8   122    25/07/32      408 BAUER RD.     231-8907   SOUTH
24 : RUSH, BARBARA          F   10   140    31/05/44    9831 CAPSTAN DR.    777-1889   SOUTH
25 : WELLS, DANIEL          M   15   145    31/12/55     1086 LANNY LN.     221-8140   SOUTH
26 : MOUCH, WILLIAM         M   14   220    23/03/21 2186 HARRISON AVE.     231-6448   WEST
27 : JACKSON, HOLLY         F   11   125    19/08/44    5151 CAPITOL DR.    285-2299   WEST
28 : GREENWELL, STEVE       M   15   250    23/09/48     2134 AIKENSIDE     631-9021   NORTH
29 : HART, BUDDY            M    8   152    09/05/59      789 WILFORD RD.   229-3880   EAST
30 : FRANKL, MARGARET       F    3   115    16/06/37  1220 GULFPORT DR.     821-4589   EAST
31 : TORREANO, MICHAEL      M   13   195    12/03/48      6906 THORNDIKE    332-8970   NORTH
32 : REIS, JANE             F    1   117    15/09/52     4639CLAYTON DR.    821-3387   WEST
33 :
34 : comment !
35 : f20,5,4,5,7,3,2,20,11,7,/4
```

NEW FORMAT N F

45.2.2 NEW FORMAT, PUT OR GET (N,P,G) : N

An "N" specification allows you to go on into the next step and permanently change the present FORMAT displayed at the top of the TABLE.

N RETURN

45.2.3 NEW FORMAT :

The present FORMAT for the TABLE is:

20,5,4,5,12,20,11,7,/4

To create a new column for the customer entries, 3 spaces from Column 1 are needed to the right of the Column 1 entries. Enter:

17,3,5,4,5,12,20,11,7,/4

After "RETURN" is pressed the new FORMAT will appear at the top of the TABLE.

NOTE: THE ",/4" ENTRY AT THE END OF THE STRING OF NUMBERS IN THE PREVIOUS SPECIFICATION SETS THE NUMBER OF LINES AT THE TOP OF THE TABLE RESERVED FOR THE HEADING.

45.2.4 We can now go ahead and give each customer a number by executing the W Command.

1 : <CUSTOMER LIST 15> (0, 0, 0) F35

2 : 3 : 4 :	NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
5 :	TAYLOR, CHERYL 1	F	22	123	25/10/60	7495 LAWYER RD.	774-1737	NORTH
6 :	WRIGHT, REGGIE 2	M	5	145	28/02/42	5516 SPRINGDALE RD.	284-2287	WEST
7 :	WINTERS, KARL 3	M	14	180	21/11/50	5 MOYER PL.	231-4498	EAST
8 :	ROBERTS, MARSHA 4	F	3	115	08/07/38	3618 ROBB AVE.	232-3240	EAST
9 :	PITMAN, LOUIS 5	M	1	134	28/02/44	454 EASTERN AVE.	229-2376	WEST
10 :	TURNAU, ALMA 6	F	3	102	01/08/62	330 FOREST AVE.	941-9834	WEST
11 :	FOREACRE, CHRIS 7	F	2	106	23/11/64	1933 WAYLAND AVE.	328-1734	WEST
12 :	SMITH, CHERYL 8	F	2	104	14/03/30	1473 EATON AVE.	874-6747	SOUTH
13 :	SEAL, KATHY 9	F	3	110	12/04/48	6520 MEIS AVE.	232-1589	NORTH
14 :	RUMPKE, BERNARD 10	M	16	210	23/06/32	1234 NORTH BEND RD.	874-8221	SOUTH
15 :	HUXEL, GUY 11	M	2	150	15/02/54	207 HOLLY LN.	861-7339	WEST
16 :	PEABODY, ANN 13	F	8	115	18/09/50	2201 TOWNHILL RD.	531-8890	NORTH
17 :	RAITT, TERRY 14	M	9	160	03/02/48	5 GRIFFITHS AVE.	922-0075	SOUTH
18 :	SEAL, RICHARD 15	M	1	178	13/01/49	6520 MEIS AVE.	232 1589	WEST
19 :	HUMES, THOMAS 16	M	9	220	12/01/49	2219 MADISON AVE.	661-9780	NORTH
20 :	GITTLEMAN, BETTY 17	F	4	120	23/08/29	12 CINDY LN.	422-7890	EAST
21 :	MYERS, PEGGY 18	F	3	109	13/01/40	1419 SUTTON DR.	876-5589	NORTH
22 :	MARSHALL, NANCY 19	F	3	116	24/03/45	1512 BEECH AVE.	749-3398	SOUTH
23 :	GOLDBERG, JODY 20	M	8	122	25/07/32	408 BAUER RD.	231-8907	SOUTH
24 :	RUSH, BARBARA 21	F	10	140	31/05/44	9831 CAPSTAN DR.	777-1889	SOUTH
25 :	WELLS, DANIEL 22	M	15	145	31/12/55	1086 LANNY LN.	221-8140	SOUTH
26 :	MOUCH, WILLIAM 23	M	14	220	23/03/21	2186 HARRISON AVE.	231-6448	WEST
27 :	JACKSON, HOLLY 24	F	11	125	19/08/44	5151 CAPITOL DR.	285-2299	WEST
28 :	GREENWELL, STEVE 25	M	15	250	23/09/48	2134 AIKENSIDE	631-9021	NORTH
29 :	HART, BUDDY 26	M	8	152	09/05/59	789 WILFORD RD.	229-3880	EAST
30 :	FRANKL, MARGARET 27	F	3	115	16/06/37	1220 GULFPORT DR.	821-4589	EAST
31 :	TORREANO, MICHAEL 28	M	13	195	12/03/48	6906 THORNDIKE	332-8970	NORTH
32 :	REIS, JANE 29	F	1	117	15/09/52	4639CLAYTON DR.	821-3387	WEST

33 :
34 : comment !
35 : f17,3,5,4,5,12,20,11,7,/4

NF NEW FORMAT

To make a permanent record of the TABLE with the new FORMAT, execute the P Command.

45.2.5 We want to list these customers in order according to their dates of birth, but before we can do this, Column 5 must be re-formatted with the NF Command so we can perform a multi-sort on this group of data.

G ; 7

N F RETURN

45.2.6 NEW FORMAT, PUT OR GET (N,P,G) : P

A "P" entry "puts" (saves) the original FORMAT displayed at the top of the TABLE before execution of NF, so we can retrieve this FORMAT later.

45.2.7 NEW FORMAT :

PIPS is asking for the new FORMAT. Enter:

```
20,5,4,5,7,3,2,20,11,7,/4
```

45.2.8 Ascending numerical SORTS can now be conducted on Columns 7,6 and 5 (in this order) and executed.

```
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH (,)),B,C) : B
COLUMN NO. : 7
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A/N
COLUMN NO. : 6
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A/N
COLUMN NO. : 5
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A/N
COLUMN NO. : E
PRINT ? (Y,N) : Y
FILE CREATION ? : N
UP TO LINE : 60
* SELECT COMMAND =
```


ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC------53	EF---226	FT----248

```
1  : <CUSTOMER LIST 15>                                    ( 0, 0, 0) F35
2  :
3  : NAME                SEX  HT   WT   BIRTH DATE          ADDRESS          TELEPHONE   SHOP
4  :
5  : MOUCH, WILLIAM       M   14   220    23/03/21   2186 HARRISON AVE.    231-6448    WEST
6  : GITTLEMAN, BETTY     F    4   120    23/08/29        12 CINDY LN.     422-7890    EAST
7  : SMITH, CHERYL        F    2   104    14/03/30     1473 EATON AVE.     874-6747    SOUTH
8  : RUMPKE, BERNARD      M   16   210    23/06/32  1234 NORTH BEND RD.    874-8221    SOUTH
9  : GOLDBERG, JODY       M    8   122    25/07/32      408 BAUER RD.     231-8907    SOUTH
10 : FRANKL, MARGARET     F    3   115    16/06/37   1220 GULFPORT DR.     821-4589    EAST
11 : ROBERTS, MARSHA      F    3   115    08/07/38     3618 ROBB AVE.      232-3240    EAST
12 : MYERS, PEGGY         F    3   109    13/01/40    1419 SUTTON DR.      876-5589    NORTH
13 : WRIGHT, REGGIE       M    5   145    28/02/42  5516 SPRINGDALE RD.    284-2287    WEST
14 : PITMAN, LOUIS        M    1   134    28/02/44     454 EASTERN AVE.    229-2376    WEST
15 : PUSH, BARBARA        F   10   140    31/05/44     9831 CAPSTAN DR.    777-1889    SOUTH
16 : JACKSON, HOLLY       F   11   125    19/08/44     5151 CAPITOL DR.    285-2299    WEST
17 : MARSHALL, NANCY      F    3   116    24/03/45     1512 BEECH AVE.     749-3398    SOUTH
18 : RAITT, TERRY         M    9   160    03/02/48     5 GRIFFITHS AVE.    922-0075    SOUTH
19 : TORREANO, MICHAEL    M   13   195    12/03/48      6906 THORNDIKE     332-8970    NORTH
20 : SEAL, KATHY          F    3   110    12/04/48      6520 MEIS AVE.     232-1589    NORTH
21 : GREENWELL, STEVE     M   15   250    23/09/48      2134 AIKENSIDE     631-9021    NORTH
22 : HUMES, THOMAS        M    9   220    12/01/49   2219 MADISON AVE.     661-9780    NORTH
23 : SEAL, RICHARD        M    1   178    13/01/49      6520 MEIS AVE.     232 1589    WEST
24 : PEABODY, ANN         F    8   115    18/09/50   2201 TOWNHILL RD.     531-8890    NORTH
25 : WINTERS, KARL        M   14   180    21/11/50         5 MOYER PL.     231-4498    EAST
26 : PEIS, JANE           F    1   117    15/09/52    4639CLAYTON DR.      821-3387    WEST
27 : HUXEL, GUY           M    2   150    15/02/54      207 HOLLY LN.      861-7339    WEST
28 : WELLS, DANIEL        M   15   145    31/12/55      1086 LANNY LN.     221-8140    SOUTH
29 : HART, BUDDY          M    8   152    09/05/59      789 WILFORD RD.    229-3880    EAST
30 : TAYLOR, CHERYL       F   22   123    25/10/60      7495 LAWYER RD.    774-1737    NORTH
31 : TURNAU, ALMA         F    3   102    01/08/62      330 FOREST AVE.    941-9834    WEST
32 : FOREACRE, CHRIS      F    2   106    23/11/64   1933 WAYLAND AVE.     328-1734    WEST
33 :
34 : comment :
35 : f20,5,4,5,7,3,2,20,11,7,/4
```

45.2.9 Once the results are printed or filed to another PAGE in the MASTER FILE, NF can be executed again, allowing us to return to the orginal TABLE FORMAT.

```
* SELECT COMMAND = NF
NEW FORMAT, PUT OR GET (N,P,G) : G
* SELECT COMMAND =
```

PROMPTS [N] [F]

```
* SELECT COMMAND = NF
NEW FORMAT , PUT OR GET (N,P,G) :
NEW FORMAT:
* SELECT COMMAND =
```

S T SUB TOTAL

46.1 THE ST COMMAND (Sub Total)

The ST Command is used to calculate a sub total for GROUPS OF ENTRIES IN THE SAME COLUMN OF A TABLE in the MASTER BUFFER, MASTER FILE, or SUB FILE.

Before the ST Command can be executed, column entries must first be sorted into groups by executing the SORT Command on the specified column. Up to 5 columns may be specified for the SORT. The ST Command can calculate sub totals for groups of entries in these columns. The ST Command can be executed on up to 5 columns simultaneously. However, PIPS will calculate sub totals for any number of sub groups in a specified column once the SORT Command has been executed.

Here is a TABLE of sales receipts recorded as they were received:

1 : (NORTH SHOP SALES) (0. 0. 0) F58

	DATE	CLERK	DEPARTMENT	MAKER	STOCK #	PRICE
5	12/19	N1	DRESSES	SACHS & RICHARDS	SR0411	60
6	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
7	12/19	N4	M.COATS	SACHS & RICHARDS	SR0644	215
8	12/19	N2	SHOES	BOSTON TOWN	BT2256	55
9	12/19	N2	SHOES	VAN CLAUSEN	VC0243	55
10	12/19	N7	W.SUITS	BOND STREET	BS0501	18
11	12/19	N7	DRESSES	SACHS & RICHARDS	SR0411	60
12	12/19	N3	SHOES	SACHS & RICHARDS	SR0281	65
13	12/19	N3	SHOES	BOSTON TOWN	BT0256	55
14	12/19	N5	M.COATS	BOND STREET	BS0610	310
15	12/19	N7	DRESSES	BOND STREET	BS0486	110
16	12/19	N5	M.COATS	BOSTON TOWN	BT0647	225
17	12/19	N1	DRESSES	BOSTON TOWN	BT0456	85
18	12/19	N8	DRESSES	SACHS & RICHARDS	SR0421	75
19	12/19	N7	DRESSES	BOSTON TOWN	BT0455	65
20	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0791	210
21	12/19	N1	DRESSES	BOSTON TOWN	BT0455	65
22	12/19	N9	M.SUITS	SACHS & RICHARDS	SR0791	210
23	12/19	N7	DRESSES	SACHS & RICHARDS	SR0431	85
24	12/19	N8	DRESSES	VAN CLAUSEN	VC0449	55
25	12/19	N1	DRESSES	VAN CLAUSEN	VC0449	55
26	12/19	N6	W.COATS	BOND STREET	BS0395	220
27	12/19	N6	W.COATS	BOND STREET	BS0399	300
28	12/19	N7	W.SUITS	VAN CLAUSEN	VC0588	215
29	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
30	12/19	N7	W.COATS	VAN CLAUSEN	VC0367	180
31	12/19	N6	W.COATS	BOSTON TOWN	BT0346	135
32	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
33	12/19	N6	W.SUITS	BOND STREET	BT0500	210
34	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
35	12/19	N10	M.SUITS	BOSTON TOWN	BT0733	315
36	12/19	N7	W.SUITS	SACHS & RICHARDS	SR0534	310
37	12/19	N3	SHOES	SACHS & RICHARDS	SR0282	80
38	12/19	N8	DRESSES	SACHS & RICHARDS	SR0431	85
39	12/19	N5	M.SUITS	BOND STREET	BS0717	135
40	12/19	N6	W.SUITS	SACHS & RICHARDS	SR0533	250
41	12/19	N2	SHOES	BOND STREET	BS0220	85
42	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
43	12/19	N7	W.COATS	SACHS & RICHARDS	SR0372	150
44	12/19	N4	M.COATS	SACHS & RICHARDS	SR0640	135
45	12/19	N9	M.COATS	BOND STREET	BS0611	350
46	12/19	N3	SHOES	BOND STREET	BS0220	85
47	12/19	N4	M.SUITS	BOND STREET	BS0784	350
48	12/19	N6	W.COATS	SACHS & RICHARDS	SR0398	300
49	12/19	N1	DRESSES	SACHS & RICHARDS	SR0421	75
50	12/19	N9	M.COATS	BOND STREET	BS0610	310
51	12/19	N3	SHOES	VAN CLAUSEN	VC0423	45
52	12/19	N10	M.COATS	SACHS & RICHARDS	SR0645	290
53	12/19	N10	M.SUITS	VAN CLAUSEN	VC0727	195
54	12/19	N8	DRESSES	BOND STREET	BS0486	110
55	12/19	N7	DRESSES	VAN CLAUSEN	VC0444	55
56						

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F------97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

SUB TOTAL ST

By executing an ascending alpha SORT on Column 3, we can easily see the groupings for which we want to calculate sub totals:

```
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH(,)),B,C) : B
COLUMN NO. : 3
ASCENDING OR DESCENDING ? (A,D,(/N IF NUMERICAL)) : A
COLUMN NO. : E
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : Y
FILE FROM : S1
UP TO LINE : 60
* SELECT COMMAND =
```

(NORTH SHOP SALES) (0. 0. 0) F58

	DATE	CLERK	DEPARTMENT	MAKER	STOCK #	PRICE
5	12/19	N7	DRESSES	SACHS & RICHARDS	SR0431	85
6	12/19	N7	DRESSES	BOND STREET	BS0486	110
7	12/19	N8	DRESSES	BOND STREET	BS0486	110
8	12/19	N7	DRESSES	VAN CLAUSEN	VC0444	55
9	12/19	N1	DRESSES	SACHS & RICHARDS	SR0411	60
10	12/19	N8	DRESSES	VAN CLAUSEN	VC0449	55
11	12/19	N8	DRESSES	SACHS & RICHARDS	SR0421	75
12	12/19	N7	DRESSES	BOSTON TOWN	BT0455	65
13	12/19	N8	DRESSES	SACHS & RICHARDS	SR0431	85
14	12/19	N7	DRESSES	SACHS & RICHARDS	SR0411	60
15	12/19	N1	DRESSES	BOSTON TOWN	BT0456	85
16	12/19	N1	DRESSES	BOSTON TOWN	BT0455	65
17	12/19	N1	DRESSES	SACHS & RICHARDS	SR0421	75
18	12/19	N1	DRESSES	VAN CLAUSEN	VC0449	55
19	12/19	N5	M.COATS	BOSTON TOWN	BT0647	225
20	12/19	N10	M.COATS	SACHS & RICHARDS	SR0645	290
21	12/19	N4	M.COATS	SACHS & RICHARDS	SR0644	215
22	12/19	N9	M.COATS	BOND STREET	BS0610	310
23	12/19	N5	M.COATS	BOND STREET	BS0610	310
24	12/19	N4	M.COATS	SACHS & RICHARDS	SR0640	135
25	12/19	N9	M.COATS	BOND STREET	BS0611	350
26	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
27	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
28	12/19	N10	M.SUITS	VAN CLAUSEN	VC0727	195
29	12/19	N10	M.SUITS	BOSTON TOWN	BT0733	315
30	12/19	N4	M.SUITS	BOND STREET	BS0784	350
31	12/19	N9	M.SUITS	SACHS & RICHARDS	SR0791	210
32	12/19	N5	M.SUITS	BOND STREET	BS0717	135
33	12/19	N4	M.SUITS	SACHS & RICHARDS	SR0791	210
34	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
35	12/19	N3	SHOES	VAN CLAUSEN	VC0423	45
36	12/19	N2	SHOES	VAN CLAUSEN	VC0243	55
37	12/19	N3	SHOES	BOND STREET	BS0220	85
38	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
39	12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
40	12/19	N2	SHOES	BOND STREET	BS0220	85
41	12/19	N3	SHOES	BOSTON TOWN	BT0256	55
42	12/19	N3	SHOES	SACHS & RICHARDS	SR0282	80
43	12/19	N3	SHOES	SACHS & RICHARDS	SR0281	65
44	12/19	N2	SHOES	BOSTON TOWN	BT2256	55
45	12/19	N6	W.COATS	BOSTON TOWN	BT0346	135
46	12/19	N7	W.COATS	VAN CLAUSEN	VC0367	180
47	12/19	N6	W.COATS	BOND STREET	BS0399	300
48	12/19	N6	W.COATS	SACHS & RICHARDS	SR0398	300
49	12/19	N6	W.COATS	BOND STREET	BS0395	220
50	12/19	N7	W.COATS	SACHS & RICHARDS	SR0372	150
51	12/19	N6	W.SUITS	BOND STREET	BT0500	210
52	12/19	N7	W.SUITS	VAN CLAUSEN	VC0588	215
53	12/19	N7	W.SUITS	BOND STREET	BS0501	18
54	12/19	N6	W.SUITS	SACHS & RICHARDS	SR0533	250
55	12/19	N7	W.SUITS	SACHS & RICHARDS	SR0534	310
56						

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST----170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD----285 | W----37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

S T SUB TOTAL

Up to 5 columns can be specifed within which sub totals can be calculated with the ST Command. Types of calculations which may be specified are as follows:

(1) + Addition
(2) - Subtraction
(3) * Multiplication
(4) / Division
(5) A Average
(6) M Maximum
(7) m Minimum
(8) C Count

The FORMAT of the TABLE containing the results can be arranged so only the necessary columns are displayed. For instance, only sub totals and the grand total can be displayed. A wide variety of other FORMATS is possible by making the appropriate specifications.

The ST Command is convenient for calculating daily sales receipts, total sales of a particular item, monthly sales by individual salesmen, etc. Follow the steps below as we start with a simple example and work our way through specifications for a variety of FORMATS to display the results of ST execution.

46.2 ST COMMAND EXECUTION

46.2.1 We're going to execute the ST Command on the TABLE above in the MASTER BUFFER. The ascending SORT on Column 3 has already been executed, using the specifications above.

```
* SELECT COMMAND = ST
```

46.2.2 PAGE NUMBER(S) ((WITH(,))B,C) : B

If a group of PAGES is specified (e.g. 20,25), the first PAGE will automatically be displayed on the CRT after pressing "RETURN".

A "B" specification tells PIPS to execute ST on a TABLE in the MASTER BUFFER. A "C" entry will execute the ST Command on PAGES specified with the SFN Command. (Refer to SFN).

46.2.3 TOTAL COLUMN FORMAT : 20

The entry here determines the column FORMAT for the grand total title and the titles of the sub totals as well. Be sure to create a column FORMAT of sufficient width.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

46.2.4 TOTAL NAME : TOTAL

Enter the title for the grand total. The title entered will be written at the end of all sub total results in the final TABLE.

46.2.5 (1) COLUMN NO. : 3

This is the first in a series of prompts asking for the number of the column in which sub totals for groups will be calculated.

46.2.6 TOTAL NAME: DEPT SUB TOTAL

Specify a title for the sub totals to be calculated for the column specified in the previous step. The number of characters for the title entry may not exceed the specificaton made in 46.2.3 above.

46.2.7 The series can continue up to "(5) COLUMN NO.:". When calculating subtotals for more than one column, repeat steps 46.2.5 and 46.2.6. When no more columns are to be specified, enter "E" and press "RETURN". PIPS will then go on to the next step.

(2) COLUMN NO. : E

If the maximum of 5 column specifications is made, PIPS will go on to the next step automatically without the "E" entry.

46.2.8 Another series of prompts will appear asking which columns from the original TABLE are to be displayed and used for calculations in the final TABLE. From the original TABLE, select which columns (previously sorted with the SORT Command) are to be displayed.

(1) PICKUP COLUMN NO. : -1
(2) PICKUP COLUMN NO. : -3
(3) PICKUP COLUMN NO. : -4
(4) PICKUP COLUMN NO. : 6

(1) To eliminate a column of the original TABLE from the results TABLE, simply do not make an entry for it.

(2) To display a column from the original TABLE in the results TABLE, enter that column number.

Prefix the column number with a "-" sign if calculations are not to be performed on the column. In other words, columns with alpha entries should always be prefixed with this sign.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF--- 56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST --- 170 | UPD--195
GR --119 | IN ---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

The order in which entries are made to these prompts determines the order in which they will appear in the results TABLE.

46.2.9 (5) PICKUP COLUMN NO. : E

When no more columns are to be specified, enter "E" and PIPS will go on to the next step.

46.2.10 COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +

Make the appropriate entry.

46.2.11 INSERT ? (Y,N) : Y

Enter "Y" when the sub total lines are to be inserted and displayed after the last entry for each group in the column(s) specified in 46.25.

Enter "N" when only sub total lines and grand total lines are to be displayed.

46.2.12 JAMMING ? (Y,N) : Y

Enter "Y" when the grand total and all sub total lines are to be displayed on the same PAGE. Enter "N" to display each group and its respective sub total on separate PAGES.

46.2.13 PRINT ? (Y,N) : Y

If a hard copy of the of the TABLE is needed, enter "Y". Otherwise, enter an "N".

46.2.14 FILE CREATION ? (Y,N) : N

When "Y" is specified to create a file for the results TABLE, the "FILE FROM:" prompt will ask for the PAGE number from which filing in the MASTER FILE will begin. Enter the appropriate starting PAGE number.

NOTE: WHEN THE ST COMMAND IS EXECUTED ON A PIPS PAGE WITH THE MAXIMUM OF 60 LINES ENTERED, MORE THAN ONE PAGE WILL BE NEEDED TO CREATE A FILE BECAUSE PIPS WILL NEED MORE SPACE TO INSERT THE SUB TOTAL LINES AND GRAND TOTAL LINE. WHEN YOU SPECIFY A STARTING PAGE IN THIS CASE, BEAR IN MIND THAT THE FILE FOR THE RESULTS CANNOT BE CONTAINED ON ONE PAGE AND WILL RUN OVER ONTO THE NEXT PAGE.

NOTE: IF "N" HAS BEEN SPECIFIED IN RESPONSE TO THE PREVIOUS "JAMMING" PROMPT AND A "Y" IS ENTERED HERE TO CREATE A FILE, EACH GROUP OF ENTRIES AND ITS RESPECTIVE SUB TOTAL WILL BE WRITTEN TO SEPARATE PAGES IN THE MASTER FILE OR SUB FILE.

Enter "N" when the results are not to be filed to the PDATA Diskette.

ACM--143	BF ---- 105	CA-D ---58	CF --- 55	CT -------- 41	DL ---- 49	END --- 4
AS ---267	BS ---- 74	CA-U -- 214	CM -- 275	CTRL ---- 237	DRL --- 64	F ----- 97
AU#--270	BT ---- 21	CAL ---- 97	COL -- 87	D -------- 97	ED ---223	FO --- 110
B ---- 33	CA-A -- 209	CC ----- 42	CS ---185	DC ------ 53	EF ---226	FT ----248

46.2.14 UP TO LINE : 60

In response to this prompt, enter the number of lines to be displayed in the MASTER BUFFER, printed on each PAGE or recorded for each PAGE in the MASTER FILE. After "RETURN" is pressed, ST will execute.

```
NORTH SHOP SALES)                                        ( 0. 0. 0) F58

                        DATE  DEPARTMENT          MAKER          PRICE
                       12/19     DRESSES    SACHS & RICHARDS       85
                       12/19     DRESSES         BOND STREET      110
                       12/19     DRESSES         BOND STREET      110
                       12/19     DRESSES         VAN CLAUSEN       55
                       12/19     DRESSES    SACHS & RICHARDS       60
                       12/19     DRESSES         VAN CLAUSEN       55
                       12/19     DRESSES    SACHS & RICHARDS       75
                       12/19     DRESSES         BOSTON TOWN       65
                       12/19     DRESSES    SACHS & RICHARDS       85
                       12/19     DRESSES    SACHS & RICHARDS       60
                       12/19     DRESSES         BOSTON TOWN       85
                       12/19     DRESSES         BOSTON TOWN       65
                       12/19     DRESSES    SACHS & RICHARDS       75
                       12/19     DRESSES         VAN CLAUSEN       55
          DEPT SUB TOTAL                                         1040
                       12/19     M.COATS         BOSTON TOWN      225
                       12/19     M.COATS    SACHS & RICHARDS      290
                       12/19     M.COATS    SACHS & RICHARDS      215
                       12/19     M.COATS         BOND STREET      310
                       12/19     M.COATS         BOND STREET      310
                       12/19     M.COATS    SACHS & RICHARDS      135
                       12/19     M.COATS         BOND STREET      350
          DEPT SUB TOTAL                                         1835
                       12/19     M.SUITS    SACHS & RICHARDS      215
                       12/19     M.SUITS    SACHS & RICHARDS      215
                       12/19     M.SUITS         VAN CLAUSEN      195
                       12/19     M.SUITS         BOSTON TOWN      315
                       12/19     M.SUITS         BOND STREET      350
                       12/19     M.SUITS    SACHS & RICHARDS      210
                       12/19     M.SUITS         BOND STREET      135
                       12/19     M.SUITS    SACHS & RICHARDS      210
          DEPT SUB TOTAL                                         1845
                       12/19       SHOES    SACHS & RICHARDS       65
                       12/19       SHOES         VAN CLAUSEN       45
                       12/19       SHOES         VAN CLAUSEN       55
                       12/19       SHOES         BOND STREET       85
                       12/19       SHOES    SACHS & RICHARDS       65
                       12/19       SHOES    SACHS & RICHARDS       65
                       12/19       SHOES         BOND STREET       85
                       12/19       SHOES         BOSTON TOWN       55
                       12/19       SHOES    SACHS & RICHARDS       80
                       12/19       SHOES    SACHS & RICHARDS       65
                       12/19       SHOES         BOSTON TOWN       55
          DEPT SUB TOTAL                                          720
                       12/19     W.COATS         BOSTON TOWN      135
                       12/19     W.COATS         VAN CLAUSEN      180
                       12/19     W.COATS         BOND STREET      300
                       12/19     W.COATS    SACHS & RICHARDS      300
                       12/19     W.COATS         BOND STREET      220

DEP' (NORTH SHOP SALES)                                  ( 0. 0. 0) F58

                        DATE  DEPARTMENT          MAKER          PRICE
:mment :                12/19     W.SUITS         BOND STREET      18
:20.6.12.2(             12/19     W.SUITS    SACHS & RICHARDS      250
                        12/19     W.SUITS    SACHS & RICHARDS      310
          DEPT SUB TOTAL                                         1003
                 TOTAL                                           7728

comment :
f20.6.12.20.7./4
```

S T SUB TOTAL

46.2.15 If ST were executed once again on the original TABLE with Column 3 already SORTED, modified specifications would make the resulting TABLE more understandable and easier to read.

```
* SELECT COMMAND = G;S1
* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH(,)),B,C,) : B
TOTAL COLUMN FORMAT : 20
TOTAL NAME : TOTAL
(1) COLUMN NO. : 3
TOTAL NAME : DEPT SUB TOTAL
(2) COLUMN NO. : E
(1) PICKUP COLUMN NO. : -3/C
(2) PICKUP COLUMN NO. :  6
(3) PICKUP COLUMN NO. :  E
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +
INSERT ? (Y,N) : N
JAMMING ? (Y,N) : Y
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE : 60
* SELECT COMMAND =
```

<NORTH SHOP SALES>

	DEPARTMENT	PRICE
DEPT SUB TOTAL	DRESSES	1040
DEPT SUB TOTAL	M.COATS	1835
DEPT SUB TOTAL	M.SUITS	1845
DEPT SUB TOTAL	SHOES	720
DEPT SUB TOTAL	W.COATS	1285
DEPT SUB TOTAL	W.SUITS	1003
TOTAL		7728

comment :
f20,12,7,/4

The "/C" specification tells PIPS to write a reference title to the sub total line. An "N" specification in response to the "INSERT ? (Y,N)" prompt, deletes the repetitive column entries which were so obvious in the previous example.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

46.2.16 Now we're going to execute the ST Command again, this time specifying two columns for sub total specifications. But first, ascending SORTS must be executed on Columns 3 and 4:

```
* SELECT COMMAND = G;10
* SELECT COMMAND = SORT
PAGE NUMBER(S) ? ((WITH(,)),B,C) : B
COLUMN NO. : 3
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A
COLUMN NO. : 4
ASCENDING OR DESCENDING ? (A,D,(/N, IF NUMERICAL)) : A
COLUMN NO. : E
PRINT ? (Y,N) : Y
FILE CREATION ? : Y
FILE FROM : S2
UP TO LINE : 60
```

```
1  : (NORTH SHOP SALES)                                    ( 0. 0. 0) F58
2  :
3  :  DATE   CLERK  DEPARTMENT          MAKER              STOCK #  PRICE
4  :
5  :  12/19    N8    DRESSES          BOND STREET          BS0486    110
6  :  12/19    N7    DRESSES          BOND STREET          BS0486    110
7  :  12/19    N1    DRESSES          BOSTON TOWN          BT0456     85
8  :  12/19    N1    DRESSES          BOSTON TOWN          BT0455     65
9  :  12/19    N7    DRESSES          BOSTON TOWN          BT0455     65
10 :  12/19    N7    DRESSES    SACHS & RICHARDS           SR0431     85
11 :  12/19    N8    DRESSES    SACHS & RICHARDS           SR0421     75
12 :  12/19    N8    DRESSES    SACHS & RICHARDS           SR0431     85
13 :  12/19    N1    DRESSES    SACHS & RICHARDS           SR0421     75
14 :  12/19    N7    DRESSES    SACHS & RICHARDS           SR0411     60
15 :  12/19    N1    DRESSES    SACHS & RICHARDS           SR0411     60
16 :  12/19    N8    DRESSES          VAN CLAUSEN          VC0449     55
17 :  12/19    N1    DRESSES          VAN CLAUSEN          VC0449     55
18 :  12/19    N7    DRESSES          VAN CLAUSEN          VC0444     55
19 :  12/19    N5    M.COATS          BOND STREET          BS0610    310
20 :  12/19    N9    M.COATS          BOND STREET          BS0610    310
21 :  12/19    N9    M.COATS          BOND STREET          BS0611    350
22 :  12/19    N5    M.COATS          BOSTON TOWN          BT0647    225
23 :  12/19   N10    M.COATS    SACHS & RICHARDS           SR0645    290
24 :  12/19    N4    M.COATS    SACHS & RICHARDS           SR0644    215
25 :  12/19    N4    M.COATS    SACHS & RICHARDS           SR0640    135
26 :  12/19    N4    M.SUITS          BOND STREET          BS0784    350
27 :  12/19    N5    M.SUITS          BOND STREET          BS0717    135
28 :  12/19   N10    M.SUITS          BOSTON TOWN          BT0733    315
29 :  12/19    N4    M.SUITS    SACHS & RICHARDS           SR0792    215
30 :  12/19    N4    M.SUITS    SACHS & RICHARDS           SR0792    215
31 :  12/19    N9    M.SUITS    SACHS & RICHARDS           SR0791    210
32 :  12/19    N4    M.SUITS    SACHS & RICHARDS           SR0791    210
33 :  12/19   N10    M.SUITS          VAN CLAUSEN          VC0727    195
34 :  12/19    N3      SHOES          BOND STREET          BS0220     85
35 :  12/19    N2      SHOES          BOND STREET          BS0220     85
36 :  12/19    N3      SHOES          BOSTON TOWN          BT0256     55
37 :  12/19    N2      SHOES          BOSTON TOWN          BT2256     55
38 :  12/19    N2      SHOES    SACHS & RICHARDS           SR0281     65
39 :  12/19    N2      SHOES    SACHS & RICHARDS           SR0281     65
40 :  12/19    N2      SHOES    SACHS & RICHARDS           SR0281     65
41 :  12/19    N3      SHOES    SACHS & RICHARDS           SR0282     80
42 :  12/19    N3      SHOES    SACHS & RICHARDS           SR0281     65
43 :  12/19    N3      SHOES          VAN CLAUSEN          VC0423     45
44 :  12/19    N2      SHOES          VAN CLAUSEN          VC0243     55
45 :  12/19    N6    W.COATS          BOND STREET          BS0399    300
46 :  12/19    N6    W.COATS          BOND STREET          BS0395    220
47 :  12/19    N6    W.COATS          BOSTON TOWN          BT0346    135
48 :  12/19    N6    W.COATS    SACHS & RICHARDS           SR0398    300
49 :  12/19    N7    W.COATS    SACHS & RICHARDS           SR0372    150
50 :  12/19    N7    W.COATS          VAN CLAUSEN          VC0367    180
51 :  12/19    N6    W.SUITS          BOND STREET          BT0500    210
52 :  12/19    N7    W.SUITS          BOND STREET          BS0501     18
53 :  12/19    N6    W.SUITS    SACHS & RICHARDS           SR0533    250
54 :  12/19    N7    W.SUITS    SACHS & RICHARDS           SR0534    310
55 :  12/19    N7    W.SUITS          VAN CLAUSEN          VC0588    215
```

S T SUB TOTAL

The ST Command can now be executed on 2 columns.

```
* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH(,),B,C)) : B
TOTAL COLUMN FORMAT : 20
TOTAL NAME : GRAND TOTAL
(1) COLUMN NO. : 3
TOTAL NAME : DEPT SUB TOTAL
(2) COLUMN NO. : 4
TOTAL NAME : MAKER SUB TOTAL
(3) COLUMN NO. : E
(1) PICKUP COLUMN NO. : -1
(2) PICKUP COLUMN NO. : -4
(3) PICKUP COLUMN NO. : -3
(4) PICKUP COLUMN NO. :  6
(5) PICKUP COLUMN NO. :  E
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +
INSERT ? (Y,N) : Y
JAMMING ? (Y,N) : Y
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE : 60
```

(NORTH SHOP SALES) (0. 0. 0) F58

	DATE	MAKER	DEPARTMENT	PRICE
	12/19	SACHS & RICHARDS	SHOES	65
MAKER SUB TOTAL				340
	12/19	VAN CLAUSEN	SHOES	45
	12/19	VAN CLAUSEN	SHOES	55
MAKER SUB TOTAL				100
DEPT SUB TOTAL				720
	12/19	BOND STREET	W.COATS	300
	12/19	BOND STREET	W.COATS	220
MAKER SUB TOTAL				520
	12/19	BOSTON TOWN	W.COATS	135
MAKER SUB TOTAL				135
	12/19	SACHS & RICHARDS	W.COATS	300
	12/19	SACHS & RICHARDS	W.COATS	150
MAKER SUB TOTAL				450
	12/19	VAN CLAUSEN	W.COATS	180
MAKER SUB TOTAL				180
DEPT SUB TOTAL				1285
	12/19	BOND STREET	W.SUITS	210
	12/19	BOND STREET	W.SUITS	18
MAKEF SUB TOTAL				228
	12/19	SACHS & RICHARDS	W.SUITS	250
	12/19	SACHS & RICHARDS	W.SUITS	310
MAKER SUB TOTAL				560
	12/19	VAN CLAUSEN	W.SUITS	215
MAKER SUB TOTAL				215
DEPT SUB TOTAL				1003
GRAND TOTAL				7728

comment :
f20.6.20.12.7./4

(NORTH SHOP SALES) (0. 0. 0) F58

	DATE	MAKER	DEPARTMENT	PRICE
	12/19	BOND STREET	DRESSES	110
	12/19	BOND STREET	DRESSES	110
MAKER SUB TOTAL				220
	12/19	BOSTON TOWN	DRESSES	85
	12/19	BOSTON TOWN	DRESSES	65
	12/19	BOSTON TOWN	DRESSES	65
MAKER SUB TOTAL				215
	12/19	SACHS & RICHARDS	DRESSES	85
	12/19	SACHS & RICHARDS	DRESSES	75
	12/19	SACHS & RICHARDS	DRESSES	85
	12/19	SACHS & RICHARDS	DRESSES	75
	12/19	SACHS & RICHARDS	DRESSES	60
	12/19	SACHS & RICHARDS	DRESSES	60
MAKER SUB TOTAL				440
	12/19	VAN CLAUSEN	DRESSES	55
	12/19	VAN CLAUSEN	DRESSES	55
	12/19	VAN CLAUSEN	DRESSES	55
MAKER SUB TOTAL				165
DEPT SUB TOTAL				1040
	12/19	BOND STREET	M.COATS	310
	12/19	BOND STREET	M.COATS	310
	12/19	BOND STREET	M.COATS	350
MAKER SUB TOTAL				970
	12/19	BOSTON TOWN	M.COATS	225
MAKER SUB TOTAL				225
	12/19	SACHS & RICHARDS	M.COATS	290
	12/19	SACHS & RICHARDS	M.COATS	215
	12/19	SACHS & RICHARDS	M.COATS	135
MAKER SUB TOTAL				640
DEPT SUB TOTAL				1835
	12/19	BOND STREET	M.SUITS	350
	12/19	BOND STREET	M.SUITS	135
MAKER SUB TOTAL				485
	12/19	BOSTON TOWN	M.SUITS	315
MAKER SUB TOTAL				315
	12/19	SACHS & RICHARDS	M.SUITS	215
	12/19	SACHS & RICHARDS	M.SUITS	215
	12/19	SACHS & RICHARDS	M.SUITS	210
	12/19	SACHS & RICHARDS	M.SUITS	210
MAKER SUB TOTAL				850
	12/19	VAN CLAUSEN	M.SUITS	195
MAKER SUB TOTAL				195
DEPT SUB TOTAL				1845
	12/19	BOND STREET	SHOES	85
	12/19	BOND STREET	SHOES	85
MAKER SUB TOTAL				170
	12/19	BOSTON TOWN	SHOES	55
	12/19	BOSTON TOWN	SHOES	55
MAKER SUB TOTAL				110
	12/19	SACHS & RICHARDS	SHOES	65
	12/19	SACHS & RICHARDS	SHOES	65
	12/19	SACHS & RICHARDS	SHOES	65
	12/19	SACHS & RICHARDS	SHOES	80

comment :
f20.6.20.12.7./4

ACM--143 | AS---267 | AU*--270 | B----33 | BF----105 | BS----74 | BT----21 | CA-A--209 | CA-D---58 | CA-U--214 | CAL----97 | CC-----42 | CF---55 | CM--275 | COL--87 | CS---185 | CT--------41 | CTRL----237 | D--------97 | DC-------53 | DL----49 | DRL---64 | ED---223 | EF---226 | END---4 | F-----97 | FO---110 | FT----248

SUB TOTAL S T

Note how modifying the specifications changes the appearance of the results TABLE.

```
* SELECT COMMAND = G;S2
* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH(,)),B,C) : B
TOTAL COLUMN FORMAT : 20
TOTAL NAME : GRAND TOTAL
(1) COLUMN NO. : 3
TOTAL NAME : DEPT SUB TOTAL
(2) COLUMN NO. : 4
TOTAL NAME : MAKER SUB TOTAL
(3) COLUMN NO. : E
(1) PICKUP COLUMN NO. : -4/C
(2) PICKUP COLUMN NO. : -3/C
(3) PICKUP COLUMN NO. :  6
(4) PICKUP COLUMN NO. :  E
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +
INSERT ? (Y,N) : N
JAMMING ? (Y,N) : Y
PRINT ? (Y,N) : Y
UP TO LINE : 60
* SELECT COMMAND =
```

‹NORTH SHOP SALES› (0. 0. 0) F58

	MAKER	DEPARTMENT	PRICE
MAKER SUB TOTAL	BOND STREET		220
MAKER SUB TOTAL	BOSTON TOWN		215
MAKER SUB TOTAL	SACHS & RICHARDS		440
MAKER SUB TOTAL	VAN CLAUSEN		165
DEPT SUB TOTAL		DRESSES	1040
MAKER SUB TOTAL	BOND STREET		970
MAKER SUB TOTAL	BOSTON TOWN		225
MAKER SUB TOTAL	SACHS & RICHARDS		640
DEPT SUB TOTAL		M.COATS	1835
MAKER SUB TOTAL	BOND STREET		485
MAKER SUB TOTAL	BOSTON TOWN		315
MAKER SUB TOTAL	SACHS & RICHARDS		850
MAKER SUB TOTAL	VAN CLAUSEN		195
DEPT SUB TOTAL		M.SUITS	1845
MAKER SUB TOTAL	BOND STREET		170
MAKER SUB TOTAL	BOSTON TOWN		110
MAKER SUB TOTAL	SACHS & RICHARDS		340
MAKER SUB TOTAL	VAN CLAUSEN		100
DEPT SUB TOTAL		SHOES	720
MAKER SUB TOTAL	BOND STREET		520
MAKER SUB TOTAL	BOSTON TOWN		135
MAKER SUB TOTAL	SACHS & RICHARDS		450
MAKER SUB TOTAL	VAN CLAUSEN		180
DEPT SUB TOTAL		W.COATS	1285
MAKER SUB TOTAL	BOND STREET		228
MAKER SUB TOTAL	SACHS & RICHARDS		560
MAKER SUB TOTAL	VAN CLAUSEN		215
DEPT SUB TOTAL		W.SUITS	1003
GRAND TOTAL			7728

comment :
f20.20.12.7./4

If ST were executed in the previous example with an "N" specification to the "JAMMING ? (Y,N)" prompt, the sub totals for each sub group would be printed on separate pages:

```
* SELECT COMMAND = G;S2
* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH(,)),B,C) : B
TOTAL COLUMN FORMAT : 20
TOTAL NAME : GRAND TOTAL
(1) COLUMN NO. : 3
TOTAL NAME : DEPT SUB TOTAL
(2) COLUMN NO. : 4
TOTAL NAME : MAKER SUB TOTAL
(3) COLUMN NO. : E
(1) PICKUP COLUMN NO. : -4/C
(2) PICKUP COLUMN NO. : -3/C
(3) PICKUP COLUMN NO. :  6
(4) PICKUP COLUMN NO. :  E
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +
INSERT ? (Y,N) : N
JAMMING ? (Y,N) : N
PRINT ? (Y,N) : Y
UP TO LINE : 60
* SELECT COMMAND =
```

‹NORTH SHOP SALES- DRESSES›

	MAKER	DEPARTMENT	PRICE
MAKER SUB TOTAL	BOND STREET		220
MAKER SUB TOTAL	BOSTON TOWN		215
MAKER SUB TOTAL	SACHS & RICHARDS		440
MAKER SUB TOTAL	VAN CLAUSEN		165
DEPT SUB TOTAL		DRESSES	1040

comment :
f20.20.12.7./4

‹NORTH SHOP SALES- M.COATS›

	MAKER	DEPARTMENT	PRICE
MAKER SUB TOTAL	BOND STREET		970
MAKER SUB TOTAL	BOSTON TOWN		225
MAKER SUB TOTAL	SACHS & RICHARDS		640
DEPT SUB TOTAL		M.COATS	1835

comment :
f20.20.12.7./4

‹NORTH SHOP SALES- M.SUITS›

	MAKER
MAKER SUB TOTAL	BOND STREET
MAKER SUB TOTAL	BOSTON TOWN
MAKER SUB TOTAL	SACHS & RICHARDS
MAKER SUB TOTAL	VAN CLAUSEN
DEPT SUB TOTAL	

comment :
f20.20.12.7./4

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

S T SUB TOTAL

46.2.17 When it is necessary to write sub totals in very large TABLES, a "/L" specification can be used in response to the "PICKUP COLUMN" prompt to write the sub total name twice, once on the left and once in the appropriate column. Follow the prompts and specifications below:

```
* SELECT COMMAND = G;S2
* SELECT COMMAND = CF
* COLUMN NO. : 3
NEW FORMAT : 20

* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH(,)),B,C) : B
TOTAL COLUMN FORMAT : 20
TOTAL NAME : GRAND TOTAL
(1) COLUMN NO. : 3
TOTAL NAME : DEPT SUB TOTAL
(2) COLUMN NO. : 4
TOTAL NAME : MAKER SUB TOTAL
(3) COLUMN NO. : E
(1) PICKUP COLUMN NO. : -1
(2) PICKUP COLUMN NO. : -2
(3) PICKUP COLUMN NO. : -3/L
(4) PICKUP COLUMN NO. : -4/L
(5) PICKUP COLUMN NO. : -5
(6) PICKUP COLUMN NO. :  6
(7) PICKUP COLUMN NO. :  E
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) : +
INSERT ? (Y,N) : Y
JAMMING ? (Y,N) : Y
PRINT ? (Y,N) : Y
UP TO LINE : 60
* SELECT COMMAND =
```

<NORTH SHOP SALES> (0. 0. 0) F58

	DATE	CLERK	DEPARTMENT	MAKER	STOCK #	PRICE
	12/19	N8	DRESSES	BOND STREET	BS0486	110
	12/19	N7	DRESSES	BOND STREET	BS0486	110
MAKER SUB TOTAL				MAKER SUB TOTAL		220
	12/19	N1	DRESSES	BOSTON TOWN	BT0456	85
	12/19	N1	DRESSES	BOSTON TOWN	BT0455	65
	12/19	N7	DRESSES	BOSTON TOWN	BT0455	65
MAKER SUB TOTAL				MAKER SUB TOTAL		215
	12/19	N7	DRESSES	SACHS & RICHARDS	SR0431	85
	12/19	N8	DRESSES	SACHS & RICHARDS	SR0421	75
	12/19	N8	DRESSES	SACHS & RICHARDS	SR0431	85
	12/19	N1	DRESSES	SACHS & RICHARDS	SR0421	75
	12/19	N7	DRESSES	SACHS & RICHARDS	SR0411	60
	12/19	N1	DRESSES	SACHS & RICHARDS	SR0411	60
MAKER SUB TOTAL				MAKER SUB TOTAL		440
	12/19	N8	DRESSES	VAN CLAUSEN	VC0449	55
	12/19	N1	DRESSES	VAN CLAUSEN	VC0449	55
	12/19	N7	DRESSES	VAN CLAUSEN	VC0444	55
MAKER SUB TOTAL				MAKER SUB TOTAL		165
DEPT SUB TOTAL			DEPT SUB TOTAL			1040
	12/19	N5	M.COATS	BOND STREET	BS0610	310
	12/19	N9	M.COATS	BOND STREET	BS0610	310
	12/19	N9	M.COATS	BOND STREET	BS0611	350
MAKER SUB TOTAL				MAKER SUB TOTAL		970
	12/19	N5	M.COATS	BOSTON TOWN	BT0647	225
MAKER SUB TOTAL				MAKER SUB TOTAL		225
	12/19	N10	M.COATS	SACHS & RICHARDS	SR0645	290
	12/19	N4	M.COATS	SACHS & RICHARDS	SR0644	215
	12/19	N4	M.COATS	SACHS & RICHARDS	SR0640	135

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

PROMPTS S T

```
* SELECT COMMAND = ST
PAGE NUMBER(S) ? ((WITH (,)),B,C,):
TOTAL COLUMN FORMAT :
TOTAL NAME :
( ) COLUMN NO. :
TOTAL NAME :
:
:
( ) COLUMN NO : E
(1) PICK UP COLUMN NO.
:
:
COMPUTATION KIND ? (+,-,*,/,C,A,M,m) :
INSERT ? (Y, N): Y
JAMMING ? (Y,N) : Y
PRINT? (Y,N) : Y
FILE CREATION ? (Y,N) : Y
FILE FROM:
UP TO LINE :
* SELECT COMMAND =
```

```
INSERT ? (Y,N) : N
JAMMING? (Y,N) : N
PRINT ? (Y,N) : N
FILE CREATION ? (Y,N) : N
UP TO LINE :
* SELECT COMMAND =
```


G ---- 26	IC-Y---46	L ------91	ML---54	P ----------23	RF---56	SORT---157	TRS---73
GF -- 247	IL ----77	LF----232	MT---15	PBACK---- 284	SB ----76	ST - - - 170	UPD--195
GR --119	IN---282	MAR--147	NF --166	PF ------- 245	SET---89	TD - - - 285	W - - -37
IC-N--80	IR ----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM - - -75	

XV. SEARCHING FOR DATA

CONDITIONAL SEARCH

UPDATE

SEARCH FILE NAME

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - -157 | TRS - - -73
GF - - 247 | IL - - - - 77 | LF - - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD - -195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - -89 | TD - - - 285 | W - - - 37
IC-N - -80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

CONDITIONAL SEARCH C S

47.1 THE CS COMMAND (Conditional Search)

The CS Command is used to set a number of conditions and to search for lines of data which meet those conditions.

A maximum of 20 search conditions may be set for lines which extend across several columns. Data which stretch over several lines may also be searched and retrieved from TABLES as blocks.

The entries in the customer list shown below, which have not been entered in any particular order, extend over three PAGES.

```
 1 : <CUSTOMER LIST 15)                          ( 0. 0. 0) F35    PAGE  7
 2 :
 3 : NAME                    SEX  HT   WT  BIRTH DATE          ADDRESS  TELEPHONE   SHOP
 4 :
 5 : TAYLOR, CHERYL
 6 : WRIGHT, REGGIE
 7 : WINTERS, KARL
 8 : ROBERTS, MARSHA
 9 : PITMAN, LOUIS
10 : TURNAU, ALMA
11 : FOREACRE, CHRIS
12 : SMITH, CHERYL
13 : SEAL, KATHY
14 : RUMPKE, BERNARD
15 : HUXEL, GUY
16 : PEABODY, ANN
17 : RAITT, TERRY
18 : SEAL, RICHARD
19 : HUMES, THOMAS
20 : GITTLEMAN, BETTY
21 : MYERS, PEGGY
22 : MARSHALL, NANCY
23 : GOLDBERG, JODY
24 : RUSH, BARBARA
25 : WELLS, DANIEL
26 : MOUCH, WILLIAM
27 : JACKSON, HOLLY
28 : GREENWELL, STEVE
29 : HART, BUDDY
30 : FRANKL, MARGARET
31 : TORREANO, MICHAEL
32 : REIS, JANE
33 :
34 : comment :
35 : f20,5,4,5,12,20,11
```

```
 1 : <CUSTOMER LIST 16)                          ( 0. 0. 0) F32    PAGE  8
 2 :
 3 : NAME                    SEX  HT   WT  BIRTH DATE          ADDRESS  TELEPHONE   SHOP
 4 :
 5 : MARLATTE, ROGER
 6 : FRUMP, ALICE
 7 : TAKEUCHI, STEVE
 8 : WOODYARD, MELIS
 9 : SALYERS, GEORGE
10 : KING, REBECCA
11 : COLE, LOUIS
12 : BURESS, BARRY
13 : ROTH, BARBARA
14 : HARPER, LARRY
15 : CARPENTER, STAN
16 : FOLEY, VICKI
17 : SCHEVE, TINA
18 : BURRESS, DIANNE
19 : KNOWLIN, VICKI
20 : KING, PATRICIA
21 : BUTCHKES, BRYNA
22 : FINKLEMAN, LINE
23 : HARRISON, LINDA
24 : EGGERMAN, RINI
25 : ORTNER, ROBERT
26 : RAITT, BONNIE
27 : AHERN, SARA LOU
28 : SCHUCZ, RAULI
29 : DRACH, CHRIS
30 :
31 : comment :
32 : f20,5,4,5,12,20,
```

```
 1 : <CUSTOMER LIST 17)                          ( 0. 0. 0) F36    PAGE  9
 2 :
 3 : NAME                    SEX  HT   WT  BIRTH DATE          ADDRESS  TELEPHONE   SHOP
 4 :
 5 : FISHER, LYNN             F    2  102  24/07/42  43 EAST KNOLL CT.  661-8361  NORTH
 6 : STEVENSON, SUE           F    1  110  16/12/45  105 WELLINGWOOD    553-8351  SOUTH
 7 : BLOCK, LEE               F    1  115  08/06/38  444 PROBASCO       874-8361  EAST
 8 : SEBASTIAN, GUNTHER       M   12  205  04/05/58  7209 PLAINFIELD    471-1528  EAST
 9 : WALTZ, RON               M   14  210  18/02/55  67 WHITEHALL CR.   961-7222  NORTH
10 : VAN ATTA, KATHY          F    9  125  13/06/48  107 READING RD.    739-1337  SOUTH
11 : BREYLEY, BETTY           F    3  165  18/09/48  30 VINE ST.        231-2442  WEST
12 : TRUJILLO, RAYMOND        M   14  186  26/11/30  74 GLORIA AVE.     321-1328  WEST
13 : MILLER, LINDA            F    3  108  25/09/50  3425 SHANNON       777-1122  EAST
14 : COX, JEFFERY             M    9  158  15/08/52  132 DONALDSON RD.  821-7722  NORTH
15 : TRACY, TRENT             M   12  205  03/02/47  29 VINE STREET     231-2441  EAST
16 : HARRISON, SHEILA         F    9  125  02/06/56  3302 PHOENIX AVE.  793-4321  WEST
17 : MACSPADDEN, PATSY        F    4  114  24/03/45  5444 GLENMORE      756-1832  WEST
18 : HAYES, DONNA             F    3  106  03/05/44  18 ZUNSEL AVE.     231-2287  NORTH
19 : ZIMMERMAN, JOYCE         F    9  160  12/07/39  3445 ELWYNN DR.    221-6712  EAST
20 : CROMWELL, MYRTLE         F    5  130  23/02/23  74 GLORIA AVE.     782-2163  SOUTH
21 : RICHARDSON, ALTHEA       F    4  116  04/01/35  509 RIDDLE RD.     825-5511  WEST
22 : DAVIDSON, CLEAT          M    8  160  16/07/28  871 HANSON DR.     271-6227  WEST
23 : HAVERIOS, PAUL           M    7  168  21/01/37  1256 EIGHT MILE RD. 553-8899 NORTH
24 : STAUTZENBACH, JUDY       F    3  116  02/06/44  641 OAK AVE.       242-1111  SOUTH
25 : PECK, NANCY              F    3  119  19/03/40  4254 ALLENDORF     471-2001  SOUTH
26 : LEMON, SARA              F    2  115  13/07/37  690 SEAL AVE.      661-6578  SOUTH
27 : PETER, BOB               M   11  187  04/05/49  440 LAFAYETTE RD.  871-7711  EAST
28 : GRANITIER, JUNE          F    8  109  09/02/32  3456 RIDGECLIFFE   774-5588  WEST
29 : LEETH, LARRY             M    6  188  06/09/50  9043 EUCLID AVE.   762-1122  EAST
30 : ST. JOHN, MARSHA         F    2  116  15/10/34  111 CAMPBELL RD.   871-2244  EAST
31 : TIEBOUT, SANDRA          F    5  108  28/03/48  2916 WEAVER RD.    825-2017  SOUTH
32 : TANKERSLEY, MARY         F    9  128  16/08/48  17 VAN KIRK        752-0110  WEST
33 : BENZ, JUDY               F    2  109  14/07/48  132 NORTH BEND RD. 221-0034  EAST
34 :
35 : comment :
36 : f20,5,4,5,12,20,11,7,14
```

C S CONDITIONAL SEARCH

By specifying search conditions for Columns 2 and 3 and conducting a search on these columns, we can display and print a list of all female customers who are under 5 foot 3 inches tall.

The numeric entries in Column 3 represent the number of inches over 5 feet.

47.2 CS COMMAND EXECUTION

47.2.1 * SELECT COMMAND = CS

47.2.2 PAGE NUMBER(S) ? ((WITH(,)),B,C) : 7,9

PIPS will conduct the search over the number of PAGES we specify. In this example, a block of PAGES have been specified.

(1) To specify a single PAGE of the MASTER FILE, enter the PAGE number and press "RETURN".

(2) To specify a block of CONSECUTIVE PAGES for the search, enter the beginning and ending PAGE numbers separated by a comma.

(3) To specify a single PAGE or block of PAGES in the SUB FILE, prefix the entries with an "S", then make the specifications as you would in (1) or (2) above. For example, "S1,9" would specify a block in the SUB FILE from PAGE 1 through 9.

(4) To search a PAGE in the MASTER BUFFER, enter "B".

(5) A "C" entry tells PIPS to search PAGES previously specified using the SFN Command. (Refer to "THE SFN COMMAND" for details.)

47.2.3 SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 2*3

Entries to this prompt determine the number(s) of the columns to be searched and search conditions. To print a list of females (F) under the specified height (<3), Columns 2 and 3 must be searched.

(1) When only one column is to be searched, enter that column number and press "RETURN".

(2) When more than one column is to be specified, enter the column numbers separated by "+", "*" or both.

NOTE: THINK OF "+" AS MEANING "OR" AND "*" AS MEANING "AND".

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

OTHER SAMPLE ENTRIES

5+7 : Causes a line to be printed in which the conditions specified for EITHER Column 5 OR Column 7 are met, or IF BOTH ARE MET.

5*7 : Causes a line to be printed only if BOTH specified conditions for Column 5 and 7 are met.

(3) Any number of conditions can be combined for the same column using the "*(AND)" and "+(OR)" specifications, however each condition counts toward the maximum of 20. Parentheses determine the order in which these specifications are executed.

SAMPLE ENTRIES

(2+3)*6 : Specifies a condition which is met only if the condition in Column 6 and at least one condition in either Column 2 or 3 are met.

(2*7)+(4*9) : Specifies a condition which is met if both conditions on Columns 2 and 7 are met, or if both conditions in Columns 4 and 9 are met. The line will also be written if all four conditions are met simultaneously.

0 : Specifies that an entire line is to be tested.

NOTE: THE SAME COLUMN MAY BE SPECIFIED AS MANY TIMES AS NECESSARY, BUT EACH SPECIFICATION COUNTS TOWARD THE MAXIMUM OF THE 20 COLUMNS WHICH MAY BE TESTED.

47.2.4 COLUMN (2) CONDITION ? (WITH #N:,<,>,=) : F

COLUMN (3) CONDITION ? (WITH #N:,<,>,=) : <3

PIPS will ask for a specification for each of the columns to be tested.

OTHER SAMPLE SPECIFICATIONS

>17 : The condition is met if a value in the specified column is GREATER THAN 17. If the column CONTAINS "17", the condition is not met.

<76 : The condition is met if the value in the specified column is LESS THAN "76". If the column contains "76", the condition is not met.

49 : The condition is met if the value in the specified column is EQUAL TO "49".

G ---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT--157	TRS---73
GF--247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF------- 245	SET---89	TD---285	W---37
IC-N--80	IR ----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

ABC : The condition is met if the value in the specified column IS IDENTICAL TO "ABC".

#N:21 : The condition is met if the value in the specified column contains ANY DATA OTHER THAN "21".

#N:DEF : The condition is met if the specified column contains ANY DATA OTHER THAN "DEF".

47.2.5 PRINT ? (Y,N) : Y

After the last condition has been specified, a prompt will ask if the results of the search are to be printed on the printer.

(1) A "Y" entry tells PIPS to print the results.

(2) An "N" entry tells PIPS to display the results of the search on the CRT only.

47.2.6 FILE CREATION ? (Y,N) : N

A prompt will ask if you want to create a file to copy the results of the search.

The results of a search are initially stored in the SUB BUFFER which is displayed on the CRT. If the results amount to more than one PAGE, they are displayed one PAGE at a time. Each time a new PAGE is displayed, however, it wipes the previous PAGE out of the SUB BUFFER.

Unless these PAGES are printed or recorded in the MASTER or SUB FILES, the results of the search will be lost.

If "Y" is entered to record the results of a search, another prompt will appear:

FILE FROM :

To this prompt, specify a PAGE in the MASTER FILE or SUB FILE where the results of the search are to be stored.

47.2.7 A prompt will ask for the number of the first PAGE to be used for recording in the MASTER FILE or SUB FILE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

47.2.8 UP TO LINE : 60

Finally the "UP TO LINE" prompt will ask how many lines are to be written to each page of the printout or to each PAGE in the MASTER FILE or SUB FILE.

```
* SELECT COMMAND = CS
PAGE NUMBER(S) ? ((WITH(,)),B,C): 7,9
SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 2*3
COLUMN (2) CONDITION ? (WITH #N:,<,>,=) : F
COLUMN (3) CONDITION ? (WITH #N:,<,>,=) : <3
PRINT? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE : 60
* SELECT COMMAND :
```

```
1  : (CUSTOMER LIST 15)                                    ( 0. 0. 0) F35    PAGE  1
2  :
3  : NAME                  SEX  HT   WT  BIRTH DATE          ADDRESS        TELEPHONE   SHOP
4  :
5  : FOREACRE, CHRIS        F    2   106   23/11/64    1933 WAYLAND AVE.    328-1734    WEST
6  : SMITH, CHERYL          F    2   104   14/03/30      1473 EATON AVE.    874-6747    SOUTH
7  : REIS, JANE             F    1   117   15/09/52     4639CLAYTON DR.     821-3387    WEST
8  : WOODYARD, MELISSA      F    2   116   06/12/47   1324 HILLCREST DR.    231-4592    NORTH
9  : ROTH, BARBARA          F    1   121   08/06/49    100 FORRESTER RD.    471-5836    EAST
10 : SCHEVE, TINA           F    0   102   03/07/58       50 STATE AVE.     232-1947    SOUTH
11 : BURRESS, DIANNE        F    1   101   11/12/49      506 RIDDLE RD.     252-3826    SOUTH
12 : EGGERMAN, RINI         F    1   112   12/02/42     289 N. ERIE HWY     771-9472    SOUTH
13 : DRACH, CHRIS           F    1   110   19/01/44  3330 JEFFERSON AVE.    552-8126    SOUTH
14 : FISHER, LYNN           F    2   102   24/07/42    43 EAST KNOLL CT.    661-8361    NORTH
15 : STEVENSON, SUE         F    1   110   16/12/45     105 WELLINGWOOD     553-8351    SOUTH
16 : BLOCK, LEE             F    1   115   08/06/38        444 PROBASCO     874-8361    EAST
17 : LEMON, SARA            F    2   115   13/07/37       690 SEAL AVE.     661-6578    SOUTH
18 : ST. JOHN, MARSHA       F    2   116   15/10/34     111 CAMPBELL RD.    871-2244    EAST
19 : BENZ, JUDY             F    2   109   14/07/48  132 NORTH BEND RD.     221-0034    EAST
20 :
21 : comment :
22 : (20,5,4,5,12,20,11,7,/4
```

47.3 CS COMMAND: WILD CARD SEARCH

In a WILD CARD SEARCH, part of a data entry or PAGE title may be specified. The remaining portion of the data entry or title is irrelevant for search purposes and is represented in the WILD CARD SEARCH specification by "?" for a single character or "*" for an undefined number of characters.

SAMPLE ENTRIES: WILD CARD

=JOHN* : Searches for data related to people with the first name "JOHN".

=*SMITH : Searches for data related to people with the last name "SMITH".

=*RFD* : Searches for data related to addresses in rural communities.

=DR.*PARK AVE : Searches for data related to doctors living on Park Ave.

=* : Unconditional search.

G - - - - 26 | IC-Y- - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN- - - 282 | MAR- - 147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- - 80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- - 203 | TRM - - - 75 |

=??????82 : Searches for data related to the year "82".

=???08??? : Searches for data related to the month of August in date entries over a period of years.

=01?????76 : Searches for data for the first of each month in 1976.

=800????? : Searches for data related to telephone numbers with the exchange "800".

NOTE: WHEN MAKING A WILD CARD SPECIFICATION, ALWAYS PREFIX THE ENTRY WITH THE "=" SIGN.

47.3.1 Here's an example of how the WILD CARD SEARCH works.

From the the list of customers used in the previous example, we can determine who lives in any area represented by a particular telephone area code number.

```
* SELECT COMMAND = CS
PAGE NUMBER(S) ? ((WITH(,)),B,C): 7,9
SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 7
COLUMN (7) CONDITION ? (WITH #N:,<,>,=) : =23*
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE : 60
* SELECT COMMAND =
```

<CUSTOMER LIST 15> (0. 0. 0) F35 PAGE 1

NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
WINTERS, KARL	M	14	180	21/11/50	5 MOYER PL.	231-4498	EAST
ROBERTS, MARSHA	F	3	115	08/07/38	3618 ROBB AVE.	232-3240	EAST
SEAL, KATHY	F	3	110	12/04/48	6520 MEIS AVE.	232-1589	NORTH
SEAL, RICHARD	M	1	178	13/01/49	6520 MEIS AVE.	232 1589	WEST
GOLDBERG, JODY	M	8	122	25/07/32	408 BAUER RD.	231-8907	SOUTH
MOUCH, WILLIAM	M	14	220	23/03/21	2186 HARRISON AVE.	231-6448	WEST
WOODYARD, MELISSA	F	2	116	06/12/47	1324 HILLCREST DR.	231-4592	NORTH
CARPENTER, STANLEY	M	11	198	10/05/45	3455 ELM ST.	232-9581	WEST
FOLEY, VICKI	F	4	109	04/05/46	14 VINE ST.	232-9581	EAST
SCHEVE, TINA	F	0	102	03/07/58	50 STATE AVE.	232-1947	SOUTH
BREYLEY, BETTY	F	3	165	18/09/48	30 VINE ST.	231-2442	WEST
TRACY, TRENT	M	12	205	03/02/47	29 VINE STREET	231-2441	EAST
HAYES, DONNA	F	3	108	03/05/44	18 ZUNSEL AVE.	231-2287	NORTH

comment :
f20,5,4,5,12,20,11,7,/4

47.3.2 With the same TABLE we can print a list of people who shop at the NORTH SHOP and were born in December:

```
* SELECT COMMAND = CS
PAGE NUMBER(S) ((WITH(,)),B,C) : 7,9
SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 5*8
COLUMN (5) CONDITION ? (WITH #N:,<,>,=) : =???12???
COLUMN (9) CONDITION ? (WITH #N:,<,>,=) : NORTH
PRINT ? (Y,N) : Y
FILE CREATION ? (Y,N) : N
UP TO LINE :
* SELECT COMMAND :
```

```
1  : <CUSTOMER LIST 15>                                    ( 0, 0, 0) F35   PAGE  1
2  :
3  : NAME                  SEX  HT   WT  BIRTH DATE          ADDRESS      TELEPHONE   SHOP
4  :
5  : MYERS, PEGGY          F    3    109  13/12/40    1419 SUTTON DR.     876-5589    NORTH
6  : TORREANO, MICHAEL     M    13   195  12/12/48    6906 THORNDIKE      332-3970    NORTH
7  : WOODYARD, MELISSA     F    2    116  06/12/47    1324 HILLCREST DR.  231-4592    NORTH
8  : HARPER, LARRY         M    16   240  03/12/58    984 PARADOME        771-9372    NORTH
9  :
10 : comment :
11 : f20,5,4,5,12,20,11,7,/4
```

47.4 CS COMMAND: BLOCK SEARCH

Ordinarily, the CS Command conducts searches on data and displays the results in units of one line. However, data in TABLES can also be handled in blocks.

A block can be specified when the data is first entered into the TABLE with the MT Command, or with the W, IR or IC Commands after the TABLE is completed.

In the TABLE below, blocks have already been specified. If we were to take this following TABLE and execute CS in a search for "SR0281", for example, all the data in the block (Lines 22-24) would be displayed.

```
1  : <BLOCK SEARCH>
2  :
3  :   ORDER          BUYER          ITEM    QTY   PRICE
4  :
5  :    1250   McCLUSKEY, LEON      BS0611   12     290
6  :                                BS0399   10     250
7  : -                              BS0220   25      60
8  :    1251   McCLUSKEY, LEON      BS0784    9     290
9  : -                              BS0486   15      85
10 :    1252   McCLUSKEY, LEON      BS0610    5     280
11 :                                BS0717    8      89
12 :                                BS0500    9     210
13 : -                              BS0220   12      85
14 :    1680      MALONE, TOM       BT0256   35      55
15 :                                BT0455   40      65
16 : -                              BT0647   10     225
17 :    1681      MALONE, TOM       BT0455   40      65
18 :                                BT0733    8     315
19 : -                              BT2256   25      55
20 :    1450   BURLEY, RANDY        SR0421   14      85
21 : -                              SR0792    5     215
22 :    1451   BURLEY, RANDY        SR0281   12      65
23 :                                SR0644    6     215
24 : -                              SR0645    6     290
```

C S

```
   1451   BURLEY, RANDY   SR0281   12   65
                          SR0644    6  215
                          SR0645    6  290
```

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF--- 56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST --- 170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

C S CONDITIONAL SEARCH

NOTE: ONCE A BLOCK IS SPECIFIED IN A TABLE, THE DISTINCTION BETWEEN INDIVIDUAL LINES FOR SEARCH AND DISPLAY PURPOSES IS LOST. THE BASIC UNIT FOR HANDLING DATA BECOMES THE BLOCK.

47.4.1 The prompts and specifications for executing the BLOCK SEARCH are identical to those of the CS Command.

47.4.2 Before a BLOCK SEARCH can be performed the blocks must first be defined.

The end of a block is specified by pressing the "LF" key located below the "RETURN" key on the keyboard.

Pressing the "LF" key to end a block is a part of the physical process of entering data. It is effective only when the cursor is being displayed within the TABLE, such as when data is being entered for the first time using the MT Command, or when revising the TABLE with the W, IR or IC Commands. Marking a block with the "LF" key is effective as long as the cursor is displayed and can be moved within the TABLE.

With the cursor displayed in the first column of the TABLE, press the LF key once. A hyphen will appear at the left-most side of the first column. THE CURSOR WILL NOT MOVE TO THE NEXT COLUMN. An entry can then be made in the first column, if needed.

NOTE: THE HYPHEN REPRESENTS THE LAST LINE OF A BLOCK. IT IS NOT NECESSARY TO SPECIFY THE BEGINNING OF A BLOCK WITH A HYPHEN INPUT WITH THE LF KEY.

NOTE: AN "LF" SPECIFICATION IS EFFECTIVE FOR A LINE REGARDLESS OF THE LEFT/RIGHT POSITION OF THE CURSOR. HOWEVER, IF THE CURSOR HAS BEEN MOVED TO THE MIDDLE OF A LINE OF DATA, DATA TO THE RIGHT OF THE CURSOR (IN THE LIGHTED PORTION) WILL BE CLEARED WHEN "LF" IS PRESSED.

47.4.3 A block mark can be easily eliminated simply by executing W, going to the correct position and pressing the "LF" key. If the "LF" key is pressed again another hyphen will appear. With the cursor displayed in the TABLE, you can move around the TABLE at will, inputting or deleting hyphens where appropriate.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F----- 97
AU#--270 | BT ---- 21 | CAL---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO --- 110
B---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC ------ 53 | EF---226 | FT----248

47.4.4 If we conduct a BLOCK search for "BT0647" with the following specifications,

```
1  : <BLOCK SEARCH>
2  :
3  :   ORDER            BUYER          ITEM  QTY  PRICE
4  :  ------------------------------------------------
5  :     1250  McCLUSKEY, LEON        BS0611   12    290
6  :                                  BS0399   10    250
7  : -                                BS0220   25     60
8  :     1251  McCLUSKEY, LEON        BS0784    9    290
9  : -                                BS0486   15     85
10 :     1252  McCLUSKEY, LEON        BS0610    5    280
11 :                                  BS0717    8     89
12 :                                  BS0500    9    210
13 : -                                BS0220   12     85
14 :     1680       MALONE, TOM       BT0256   35     55
15 :                                  BT0455   40     65
16 : -                                BT0647   10    225
17 :     1681       MALONE, TOM       BT0455   40     65
18 :                                  BT0733    8    315
19 : -                                BT2256   25     55
20 :     1450     BURLEW, RANDY       SR0421   14     85
21 : -                                SR0792    5    215
22 :     1451     BURLEW, RANDY       SR0281   12     65
23 :                                  SR0644    6    215
24 : -                                SR0645    6    290
25 :     1452     BURLEW, RANDY       SR0421   25     75
26 :                                  SR0398    8    300
27 : -                                SR0792    8    215
28 :     1965     GLASS, MELVIN       VC0727    9    195
29 :                                  VC0588    2    215
30 :                                  VC0423   40     45
31 :                                  VC0243   35     55
32 : -                                VC0449   35     55
33 :  ------------------------------------------------
34 : comment :
35 : f7,17,10,5,7,/4
```

```
* SELECT COMMAND = CS
PAGE NUMBER(S) ? ((WITH(,)),B,C) : 12
SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 3*5
COLUMN (3) CONDITION ? (WITH #N:,<,>,=) : BT0647
COLUMN (5) CONDITION ? (WITH #N:,<,>,=) : 225
PRINT ? (Y,N) : Y
FILE CREATION ? : N
UP TO LINE : 60
```

PIPS will print the following results:

```
1  : <BLOCK SEARCH>
2  :
3  :   ORDER            BUYER          ITEM  QTY  PRICE
4  :  ------------------------------------------------
5  :     1680       MALONE, TOM       BT0256   35     55
6  :                                  BT0455   40     65
7  : -                                BT0647   10    225
8  :  ------------------------------------------------
9  : comment :
10 : f7,17,10,5,7,/4
```

C S CONDITIONAL SEARCH

PROMPTS C S

```
* SELECT COMMAND = CS
PAGE NUMBERS(S) ? ((WITH(,)),B,C) :
SPECIFY COLUMN() CONDITION(S) (WITH +, * IF NECESSARY) :
COLUMN ( ) CONDITION? (WITH #N:,<,>,=) :
:
:
PRINT ? (Y,N) : Y
FILE CREATION? (Y,N) : Y
FILE FROM :
UP TO LINE :
* SELECT COMMAND =
```

```
PRINT ? (Y,N) : N
FILE CREATION? (Y,N) : N
UP TO LINE :
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU✱--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

48.1 THE UPD COMMAND (Update)

The UPD Command is used to search for data which meet specified conditions and then to replace those data automatically. As the data may be in a TABLE which extends over many PAGES in a file, this command relieves you of the tedium of having to replace or delete the same data line by line, PAGE by PAGE.

The UPD Command can be used with both FORMATTED and NON-FORMATTED PAGES in the MASTER FILE, SUB FILE or MASTER BUFFER. The search function of this command resembles the CS Command in that many of the prompts are similar and that once again a maximum of 20 conditions can be set per line.

48.2 UPD COMMAND EXECUTION

Prompts and possible specifications for the UPD Command are as follows:

48.2.1 * SELECT COMMAND = UPD

A prompt will ask for a specification of which PAGES are to be searched:

PAGE NUMBER(S) ((WITH(,)),B,C) :

(1) To specify a single PAGE, enter the PAGE number, then press "RETURN".

(2) To specify a block of PAGES, enter the first and last PAGE numbers, separated by a comma.

(3) To specify PAGE(S) in the SUB FILE, prefix the first PAGE number you enter with an "S".

(4) To search the MASTER FILE, enter "B".

(5) Enter "C" to search the same PAGES specified with the SFN Command. (See SFN.)

48.2.2

With the next prompt, PIPS will ask for the column numbers to be tested in each line. No more than 20 column numbers can be entered:

SPECIFY COLUMN CONDITION(S)(WITH +,* IF NECESSARY :

(1) An asterisk (*) entry specifies that the entire line is to be tested.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF--- 56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB ----76 | ST --- 170 | UPD--195
GR -- 119 | IN---282 | MAR--147 | NF -- 166 | PF ------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

(2) To specify one column, enter that column number then press "RETURN".

(3) To specify more than one column, enter the numbers of the columns to be searched, separated by "+" or "*".

SAMPLE ENTRIES

5+7 : Causes a line to be updated when the conditions specified for EITHER Column 5 OR 7 are met, or if both are met.

5*7 : Causes a line to be updated only if BOTH specified conditions for Columns 5 and 7 are met.

NOTE: ANY NUMBER OF CONDITIONS CAN BE COMBINED USING THE "+" AND "*" OPERATIONS. THE ORDER IN WHICH THESE OPERATIONS ARE PERFORMED IS DETERMINED BY PARENTHESES.

NOTE: THINK OF "+" AS MEANING "OR" AND "*" AS MEANING "AND".

SAMPLE ENTRIES

(2+3)*6 : Specifies a condition which is met only if the condition on Column 6 and at least one of the conditions on Columns 2 and 3 are met at the same time.

(2*7)+(4*9) : Specifies a condition which is met if both conditions on Columns 2 and 7 are met, or if both conditions on Columns 4 and 9 are met, or if conditions of all four columns are met simultaneously.

NOTE: USING THE "+" AND "*" SIGNS, ENTER ALL THE NUMBERS OF THE COLUMNS TO BE TESTED BEFORE PRESSING "RETURN".

NOTE: THE SAME COLUMN MAY BE SPECIFIED AS MANY TIMES AS DESIRED. HOWEVER, EACH SPECIFICATION COUNTS TOWARD THE MAXIMUM OF THE 20 COLUMNS WHICH MAY BE TESTED.

48.2.3 PIPS will ask for a specification for each of the columns to be tested:

COLUMN ( ) CONDITION ? (WITH +,* IF NECESSARY):

SAMPLE ENTRIES

>20 : Condition is met if the value in the specified column is GREATER THAN 20. If the column CONTAINS "20", the condition is not met.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

<20 : Condition is met if the value in the specified column is LESS THAN 20. If the column CONTAINS "20", the condition is not met.

=59 : Condition is met if the value in the specified column is EQUAL TO "59".

=ABC : Condition is met if the value in the specified column is IDENTICAL TO "ABC".

#N:21 : Condition is met if the specified column CONTAINS ANY DATA OTHER THAN "21".

#N:DEF" : Condition is met if the specified column CONTAINS ANY DATA OTHER THAN "DEF".

After the condition has been specified, a reverse field bar will appear at the first column of the first line which meets your specification.

48.2.4 With the next prompt , we can specify what kind of update will be done to the selected columns of the first line selected:

SKIP, REPLACE OR DELETE (S,R,D) :

Disregard the "S" specification for moment; it will be explained below.

When replacing a data item on lines which meet the search conditions, enter "R".

48.2.5 COLUMN NO. OR $DATA :

Here we specify the number of the column which holds the data item we want to update. A sequence of characters to be updated can also be specified, regardless of where they appear in the line.

(1) To specify a column, enter that column number.

(2) To specify a sequence of characters anywhere on the line, enter the character sequence preceded by a dollar sign "$".

48.2.6 Regardless of whether a column number or character is entered above, the next prompt will be the same:

NEW DATA :

This prompt is asking you to specify the new data to replace the data specified in the previous step.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O----9	PROTECT---276	SFN--203	TRM---75	

NOTE: WHEN SPECIFYING COLUMN NUMBERS, THE NEW DATA MUST NOT EXCEED THE WIDTH OF THE COLUMNS.

NOTE: WHEN SPECIFYING CHARACTER STRINGS USING THE "$", THE NUMBER OF CHARACTERS IN THE NEW DATA MUST BE THE SAME OR LESS THAN THE NUMBER OF CHARACTERS BEING REPLACED.

After the new data is entered and "RETURN" is pressed, the update specified will be executed on that line. Once again, PIPS will ask, "COLUMN NO. OR $DATA:". You may update as many columns as there are in that line. When you have specified all the updates you want to execute, enter "E" to this prompt and press "RETURN".

48.2.7 After pressing "RETURN", a new prompt will appear:

SEARCH AGAIN (Y,N) AUTO CONTINUE (C) :

(1) An "N" specification will return PIPS to the COMMAND MODE.

(2) A "Y" specification will tell PIPS to search for the next line which meets the conditions previously specified. After the cursor stops at the next line, repeat the procedures explained in 48.2.5-48.2.6 . Then the "SKIP, REPLACE, OR DELETE" prompt will appear again.

To skip a line without making a change, enter "S" and press "RETURN". The cursor will move to the next line which meets the specified conditions.

(3) A "C" entry tells PIPS to search for and find lines which meet the specified conditions, and as each line is found, PIPS will update it automatically according to the first update specifications made in 48.2.3. Once "C" has been specified, you cannot intervene until the update is completed.

NOTE: IN ALL CASES, WHEN THERE ARE NO MORE LINES WHICH MEET THE SEARCH CONDITIONS, PIPS WILL RETURN TO THE COMMAND MODE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

48.2.8 Given the price list shown below (PAGE 13), let's assume for a moment that both the cost and retail price for SR0412 have been revised. We're going to search the list, find the correct location for the present entry and update it.

We know SR0412 currently retails for $45. The new cost and retail price are $35 and $40.

```
1  : (UPD COMMAND EXAMPLE)                              ( 0. 0. 0)
2  :
3  : SECTION        |MAKER              STOCK #    COST  PRICE
4  :
5  : CASUAL WEAR    |BOND STREET        BS0488      25     35
6  :                |                   BS0486      95    110
7  :                |                   BS0489      50     55
8  :                |BOSTON TOWN        BT0455      45     65
9  :                |                   BT0462      45     60
10 :                |                   BT0463      50     75
11 :                |SACHS & RICHARDS   SR0431      65     85
12 :                |                   SR0421      60     75
13 :                |                   SR0416      75     90
14 :                |                   SR0415      60     79
15 :                |                   SR0414      25     35
16 :                |                   SR0413      34     50
17 :                |                   SR0412      40     45
18 :                |                   SR0411      50     60
19 :                |VAN CLAUSEN        VC0444      45     55
20 :                |                   VC0463      85    110
21 :                |                   VC0432      85     90
22 :
23 :                |                   VC0449      50     55
24 : EVENING WEAR   |BOND STREET        BS0491     170    195
25 :                |                   BS0487     190    250
26 :                |                   BS0490     280     30
27 :                |                   BS0485      75     85
28 :                |BOSTON TOWN        BT0461     285    300
29 :                |                   BT0460     185    215
30 :                |                   BT0459     175    200
31 :                |                   BT0458     130    150
32 :                |                   BT0457      85    100
33 :                |                   BT0456      70     85
34 :                |SACHS & RICHARDS   SR0418     130    145
35 :                |                   SR0417      85    110
36 :                |                   SR0410     120    145
37 :                |                   SR0491     140    165
38 :                |                   SR0499     185    215
39 :                |VAN CLAUSEN        VC0468     175    200
40 :                |                   VC0467     160    180
41 :                |                   VC0466     155    165
42 :                |                   VC0465     135    150
43 :                |                   VC0464     120    135
44 :
45 : comment :
46 : f14,1,18,10,8,7,/4
```

```
* SELECT COMMAND = G;13
* SELECT COMMAND = UPD
PAGE NUMBER(S) ((WITH(,),B,C) : B
SPECIFY COLUMN CONDITION(S) (WITH +,* IF NECESSARY) : 4*6
COLUMN (4) CONDITION (WITH #N:,<,>,=) : SR0412
COLUMN (6) CONDITION (WITH #N:,<,>,=) : 45
SKIP, REPLACE, DELETE (S,R,D) : R
COLUMN NO. OR $DATA : 5
NEW DATA : 35
```

AT LINE 17 SR0412 35 45

G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT- - -157	TRS- - -73
GF - - 247	IL - - - - 77	LF- - - -232	MT - - - 15	PBACK- - - - 284	SB - - - -76	ST - - - 170	UPD- -195
GR - - 119	IN- - -282	MAR- - 147	NF - - 166	PF - - - - - - - 245	SET- - -89	TD - - - 285	W - - - 37
IC-N- -80	IR - - - - 44	MAW- - 147	O - - - - 9	PROTECT- - -276	SFN- -203	TRM - - -75	

```
COLUMN NO. OR $DATA : $45
NEW DATA : 40
   AT LINE 17          SR0412      35      40
                                       ↑

COLUMN NO. OR $DATA : E
SEARCH AGAIN ? (Y,N) AUTO CONTINUE (C) : Y
* SELECT COMMAND =
```

PIPS automatically returns to the COMMAND MODE when there are no more data lines which meet the specified conditions.

48.2.9 Follow the specifications below as we eliminate all SACHS & RICHARDSON (SR) merchandise with the arabic numeral one in the last position. We are to assume that this line of merchandise has been discontinued.

48.2.10 Column 4 has to be searched with both alpha and numeric specifications. Before we can do this, Column 4 must be reformatted with the NF Command.

The present FORMAT,

14,18,10,8,7,/4

has been changed to:

14,1,18,6,4,10,/4

```
* SELECT COMMAND = NF
NEW FORMAT, PUT OR GET (N,P,G) : N
NEW FORMAT : 14,1,18,6,4,10,/4
* SELECT COMMAND =
```

```
1  : (UPD COMMAND EXAMPLE)                                  ( 0. 0. 0)
2  :
3  : SECTION      |MAKER          STOCK #    COST   PRICE
4  :              |
5  : CASUAL WEAR  |BOND STREET    BS0488       25      35
6  :              |               BS0486       95     110
7  :              |               BS0489       50      55
8  :              |BOSTON TOWN    BT0455       45      65
9  :              |               BT0462       45      60
10 :              |               BT0463       50      75
11 :              |SACHS & RICHARDS SR0431     65      85
12 :              |               SR0421       60      75
13 :              |               SR0416       75      90
14 :              |               SR0415       60      79
15 :              |               SR0414       25      35
16 :              |               SR0413       34      50
17 :              |               SR0412       40      45
18 :              |               SR0411       50      60
19 :              |VAN CLAUSEN    VC0444       45      55
20 :              |               VC0463       85     110
21 :              |               VC0432       85      90
22 :              |
23 :              |               VC0449       50      55
24 : EVENING WEAR |BOND STREET    BS0491      170     195
25 :              |               BS0487      190     250
26 :              |               BS0490      280      30
27 :              |               BS0485       75      85
28 :              |BOSTON TOWN    BT0461      285     300
29 :              |               BT0460      185     215
30 :              |               BT0459      175     200
31 :              |               BT0458      130     150
32 :              |               BT0457       85     100
33 :              |               BT0456       70      85
34 :              |SACHS & RICHARDS SR0418     130     145
35 :              |               SR0417       85     110
36 :              |               SR0410      120     145
37 :              |               SR0491      140     165
38 :              |               SR0499      185     215
39 :              |VAN CLAUSEN    VC0468      175     200
40 :              |               VC0467      160     180
41 :              |               VC0466      155     165
42 :              |               VC0465      135     150
43 :              |               VC0464      120     135
44 :
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

UPDATE

```
* SELECT COMMAND = UPD
PAGE NUMBER(S) ((WITH(,),B,C) : B
SPECIFY COLUMN(S) CONDITION(S) (WITH +,* IF NECESSARY) : 4*5
COLUMN (4) CONDITION (WITH #N:,<,>,=) : SR
COLUMN (5) CONDITION (WITH #N:,<,>,=) : =???1
SKIP, REPLACE OR DELETE (S,R,D) : D
SEARCH AGAIN (Y,N), AUTO CONTINUE (C) ? : C
```

```
1  : <UPD COMMAND EXAMPLE>                                  ( 0. 0. 0)
2  :
3  :  SECTION        |MAKER              STOCK #    COST   PRICE
4  :  ---------------+-------------------------------------------
5  :  CASUAL WEAR    |BOND STREET        BS0488       25      35
6  :                 |                   BS0486       95     110
7  :                 |                   BS0489       50      55
8  :                 |BOSTON TOWN        BT0455       45      65
9  :                 |                   BT0462       45      60
10 :                 |                   BT0463       50      75
11 :                 |                   SR0416       75      90
12 :                 |                   SR0415       60      79
13 :                 |                   SR0414       25      35
14 :                 |                   SR0413       34      50
15 :                 |                   SR0412       40      45
16 :                 |VAN CLAUSEN        VC0444       45      55
17 :                 |                   VC0463       85     110
18 :                 |                   VC0432       85      90
19 :  ---------------+-------------------------------------------
20 :                 |                   VC0449       50      55
21 :  EVENING WEAR   |BOND STREET        BS0491      170     195
22 :                 |                   BS0487      190     250
23 :                 |                   BS0490      280      30
24 :                 |                   BS0485       75      85
25 :                 |BOSTON TOWN        BT0461      285     300
26 :                 |                   BT0460      185     215
27 :                 |                   BT0459      175     200
28 :                 |                   BT0458      130     150
29 :                 |                   BT0457       85     100
30 :                 |                   BT0456       70      85
31 :                 |SACHS & RICHARDS   SR0418      130     145
32 :                 |                   SR0417       85     110
33 :                 |                   SR0410      120     145
34 :                 |                   SR0499      185     215
35 :                 |VAN CLAUSEN        VC0468      175     200
36 :                 |                   VC0467      160     180
37 :                 |                   VC0466      155     165
38 :                 |                   VC0465      135     150
39 :                 |                   VC0464      120     135
40 :  ---------------+-------------------------------------------
41 : comment :
42 : f14,1,18,6,4,10,/4
```

DELETED:

SR0431	65	85
SR0421	60	75
SR0411	50	60
SR0491	140	165

G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT- - -157	TRS- - -73
GF - - 247	IL - - - - 77	LF - - - -232	MT - - - 15	PBACK - - - - 284	SB - - - -76	ST - - - 170	UPD- -195
GR - - 119	IN - - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET - - -89	TD - - - 285	W - - - 37
IC-N - -80	IR - - - - 44	MAW - - 147	O - - - - 9	PROTECT - - -276	SFN - -203	TRM - - - 75	

PROMPTS U P D

```
* SELECT COMMAND = UPD
PAGE NUMBER(S) ((WITH(,)),B,C):
SPECIFY COLUMN(S) CONDITION(S)(WITH +,* IF NECESSARY) :
COLUMN..,CONDITION (WITH #N:,<,>,=):
:
:
SKIP, REPLACE, DELETE (S,R,D):R
COLUMN NO. OR $DATA :
NEW DATA:

COLUMN NO OR $DATA :
NEW DATA:
:
:
COLUMN NO. OR $DATA: E
SEARCH AGAIN (Y,N) AUTO CONTINUE (C):Y
SKIP, REPLACE OR DELETE (S,R,D): R

COLUMN NO. OR $DATA:
NEW DATA:
:
:
COLUMN NO. OR DATA : E
SEARCH AGAIN(Y,N) AUTO CONTINUE(C) :
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

SEARCH FILE NAME S F N

49.1 THE SFN COMMAND (Search File Name)

The SFN Command is used to search for all PAGES in the MASTER FILE which are recorded under a certain title. When using this command, you may specify all or part of the title in a WILD CARD SEARCH, so you can search for PAGES with similar or related titles and not just identical ones.

After a PAGE or group of PAGES has been specified with the SFN Command they are permanently recorded and can be called simply by entering "C" to this prompt:

```
PAGE NUMBER(S) ((WITH (,)),B,C):
```

This prompt, which should be familiar to you by now, is used with the following commands:

(1) CA (Column Arrange)
(2) CAL (Calculation)
(3) CS (Conditional Search)
(4) L (Print)
(5) LF (List with Format)
(6) SORT
(7) ST (Sub Total)
(8) UPD (Update)
(9) PROTECT

PAGE numbers registered with the SFN Command remain specified until the next time the SFN Command is executed, or until the PAGES are released. PAGE specifications are permanently recorded and remain in effect even when the system has been shut down.

The most important advantage of specifying PAGES with the SFN Command is that it allows you to specify PAGES for searches, sorts, etc. which are not arranged in the MASTER FILE in consecutive order. In other words, when it is necessary to search for data in PAGES 1,3,5,10 and 25, for example, SFN allows you to do this as long as at least part of the titles can be found with a WILD CARD SEARCH.

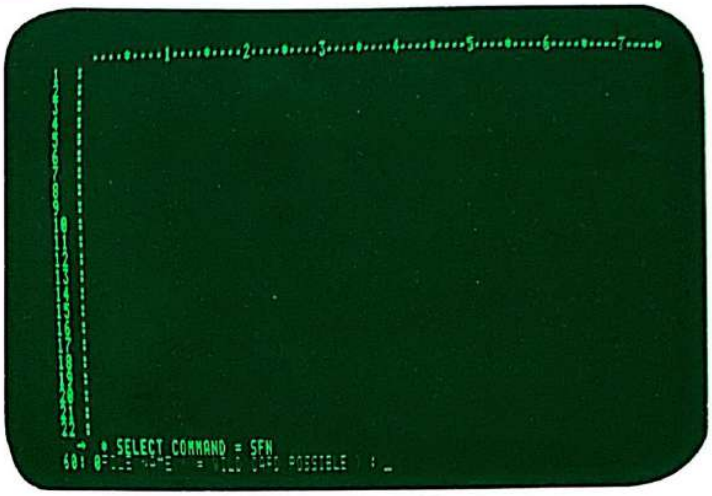
49.2 SFN COMMAND EXECUTION

In the following example, we'll designate three PAGES in the MASTER FILE to be recorded with the SFN Command.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST ---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD ---285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

S F N SEARCH FILE NAME

49.2.1 * SELECT COMMAND = SFN

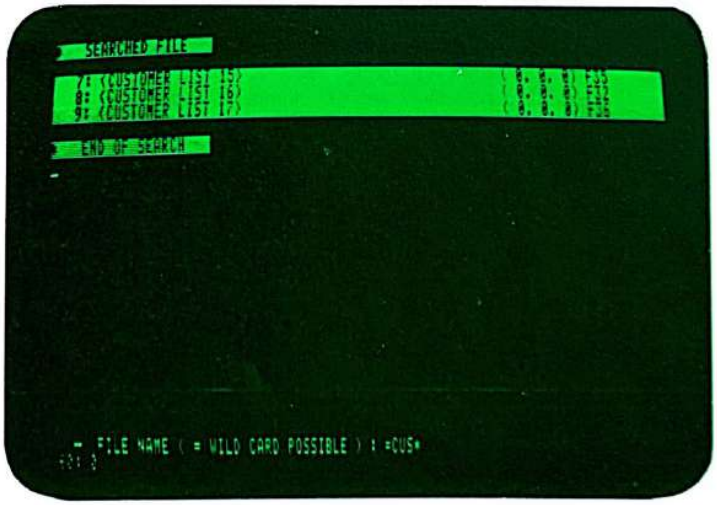


49.2.2 FILE NAME (= WILD CARD POSSIBLE) : =CUS*

Specify the title to be searched for, or, using a WILD CARD SEARCH specification, specify part of the title.

NOTE: THE TITLE OR PART THEREOF MUST BE IDENTICAL TO THE ORIGINAL, EVEN IN REGARD TO THE USE OF UPPER AND LOWER CASE LETTERS AND BLANK SPACES.

After specifying the title, press "RETURN". The screen will clear and the titles of the PAGES in the MASTER FILE which match the specification will be displayed in reverse field.



ACM--143 | AS---267 | AU#--270 | B----33 | BF----105 | BS----74 | BT----21 | CA-A--209 | CA-D---58 | CA-U--214 | CAL----97 | CC-----42 | CF---55 | CM--275 | COL--87 | CS---185 | CT--------41 | CTRL----237 | D--------97 | DC-------53 | DL----49 | DRL---64 | ED---223 | EF---226 | END---4 | F-----97 | FO---110 | FT----248

SEARCH FILE NAME S F N

After all files which meet the specifications are displayed, "*END OF SEARCH" will be displayed.

49.2.3 Press any key to return to the COMMAND MODE.

NOTE: PAGES FOUND AND RECORDED WITH THIS COMMAND ARE ALWAYS DISPLAYED IN REVERSE FIELD WHEN THE BT COMMAND (Show Master Buffer) IS EXECUTED.

49.2.4 To release PAGES from this specification, repeat the above procedure, entering "=" to the "FILE NAME" prompt and then pressing "RETURN".

Titles may be released and new titles specified whenever necessary.

PROMPTS S F N

```
* SELECT COMMAND = SFN
FILE NAME ( = WILD CARD POSSIBLE) :
* SELECT COMMAND =
```


G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST - - - 170 | UPD--195
GR --119 | IN ---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD - - - 285 | W - - -37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM - - -75 |

XVI. THE CA COMMAND: A AND U BRANCHES

G ---- 26
GF -- 247
GR -- 119
IC-N- 80
IC-Y- 46
IL ---- 77
IN --- 282
IR ---- 44
L ------ 91
LF --- 232
MAR -- 147
MAW - 147
ML --- 54
MT --- 15
NF -- 166
O ---- 9
P ------- 23
PBACK -- 284
PF ------ 245
PROTECT - 276
RF --- 56
SB ---- 76
SET --- 89
SFN -- 203
SORT -- 157
ST --- 170
TD --- 285
TRM --- 75
TRS --- 73
UPD -- 195
W --- 37

COLUMN ARRANGE: A BRANCH

C A

50.1 CA COMMAND: THE "A" BRANCH

The "D" Branch (Docking) of the CA Command was explained in 20.1. In this and the next section, the "A" (Arrange) and "U" (Update) branches will be described.

With the "A" Branch of the CA Command, an INDEX COLUMN in a TABLE in the MASTER BUFFER can be compared with an INDEX COLUMN of another TABLE in the MASTER FILE or SUB FILE to find entries which are common to both TABLES.

Once an index column common in both TABLES is specified, these TABLES can be combined in total or with only select columns specified from each in any order. The "U" Branch can be executed only upon TABLES which have identical INDEX COLUMNS. INDEX COLUMNS could be a lists of titles, names or numbers which appear in BOTH TABLES.

INDEX COLUMNS in the TABLES need not be in the same order, but THE FORMAT FOR EACH OF THE INDEX COLUMNS MUST BE EXACTLY THE SAME.

The CA Command can be used to make a new TABLE by taking lines from either TABLE and rearranging them. Data can also be taken from TABLES with completely different FORMATS and combined into a TABLE with a new FORMAT. Such TABLES may extend over several PAGES.

50.2 CA COMMAND: "A" BRANCH EXECUTION

In the following example, we'll add two columns from a TABLE in the MASTER FILE (the SUB FILE could also be specified) to the TABLE in the MASTER BUFFER. The addition of this data will be based on a comparison of an index column we specify in each TABLE.

The positioning of the lines in the column will be based on the comparison of INDEX COLUMNS specified.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

CA COLUMN ARRANGE: A BRANCH

50.2.1 Before execution of this command, note carefully the PAGE(s) and original column numbers of TABLES in the MASTER FILE or SUB FILE which are to be used. Once execution of this command is begun, the TABLE in the MASTER FILE cannot be displayed.

MASTER BUFFER

Index column

```
1  : <EMPLOYEES: NORTH & SOUTH SHOPS>
2  :                                                    pg 14
3  :  NUMBER  NAME                      TELEPHONE   DAY OFF
4  :  ------------------------------------------------------
5  :  S3      BENCH, RALPH              951-1679        WED
6  :  N2      BLOOM, ALAN               782-8756        FRI
7  :  S6      BREEN, GEORGE             826-7553        WED
8  :  S5      BROWN, DICK               791-5489        TUE
9  :  N10     BROWNYER, BOB             732-2965        SUN
10 :  S2      BURK, BOB                 549-2389        SAT
11 :  N1      HARRIS, JUDY              821-7432        WED
12 :  N7      HARRIS, SALLI             721-9078        MON
13 :  N9      HEWITT, DENNIS            721-8937        SUN
14 :  N6      JONES, BILLIE             822-5829        SAT
15 :  N5      KISMAN, MIKE              631-6745        SUN
16 :  N3      MARSHALL, TOM             879-5239        SUN
17 :  S1      MYER, BOB                 876-2417        SUN
18 :  S4      ROGERS, TOM               541-7777        SUN
19 :  S7      SCULLY, RALPH             223-2349        THU
20 :  N4      SILKOFF, BILL             345-1287        THU
21 :  S8      SWAILES, BILL             488-3327        SUN
22 :  S10     WALTZ, RON                622-7531        SAT
23 :  S9      WARGO, BILL               299-5133        FRI
24 :  N8      ZOLLINGER, LINDA          731-4561        WED
25 :  ------------------------------------------------------
26 : comment :
27 : f8,20,11,9,/4
```

MASTER FILE

Index column

```
1  : <EMPLOYEE HOURS: 30 NOV 82>
2  :
3  :  NAME                    HOURS  OVERTIME
4  :  ------------------------------------------
5  :  BLOOM, ALAN                 8         2
6  :  BURK, BOB                   5
7  :  HEWITT, DENNIS              8         4
8  :  JONES, BILLIE               6
9  :  ROGERS, TOM                 8         8
10 :  ------------------------------------------
11 : comment :
12 : f20,7,10,/4
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

COLUMN ARRANGE: A BRANCH

C A

50.2.2 Get the TABLE which will serve as the base for the new TABLE in the MASTER BUFFER. Enter "CA" then "A" in response to the next prompt.

```
* SELECT COMMAND = G;14
```

1 : <EMPLOYEES: NORTH & SOUTH SHOPS>
2 :
3 :

NUMBER	NAME	TELEPHONE	DAY OFF
S3	BENCH, RALPH	951-1679	WED
N2	BLOOM, ALAN	782-8756	FRI
S6	BREEN, GEORGE	826-7553	WED
S5	BROWN, DICK	791-5489	TUE
N10	BROWNYER, BOB	732-2965	SUN
S2	BURK, BOB	549-2389	SAT
N1	HARRIS, JUDY	821-7432	WED
N7	HARRIS, SALLI	721-9078	MON
N9	HEWITT, DENNIS	721-8937	SUN
N6	JONES, BILLIE	822-5829	SAT
N5	KISMAN, MIKE	631-6745	SUN
N3	MARSHALL, TOM	879-5239	SUN
S1	MYER, BOB	876-2417	SUN
S4	ROGERS, TOM	541-7777	SUN
S7	SCULLY, RALPH	223-2349	THU
N4	SILKOFF, BILL	345-1287	THU
S8	SWAILES, BILL	488-3327	SUN
S10	WALTZ, RON	622-7531	SAT
S9	WARGO, BILL	299-5133	FRI
N8	ZOLLINGER, LINDA	731-4561	WED

25 :
26 : comment :
27 : f8,20,11,9,/4

```
* SELECT COMMAND = CA
DOCKING, ARRANGE OR UP DATE ? (D,A,U) : A
PAGE NUMBER(S) ((WITH(,)),B,C) :
```

50.2.3 PIPS is asking for the number(s) of PAGES in the MASTER FILE or SUB FILE which are to be used in making the new TABLE.

```
PAGE NUMBER(S) ((WITH)),B,C) : 15
ITEM COLUMN (BUFFER) :
```

50.2.4 Here we specify the number of the column in the MASTER BUFFER that we want to use as the INDEX COLUMN, a column which contains data such as code numbers, names or titles which also appear in a column of the TABLE on the PAGE specified in the previous step and located in the MASTER FILE.

```
ITEM COLUMN (BUFFER) : 2
ITEM COLUMN (FILE) :
```

50.2.5 Now we specify the number of the column which will serve as the lNDEX COLUMN in the TABLE on the specified PAGE in the MASTER FILE.

```
ITEM COLUMN (FILE) : 1
HOW MANY COLUMNS ? :
```

C A COLUMN ARRANGE: A BRANCH

50.2.6 PIPS is asking for the number of columns to be included IN THE NEW TABLE.

```
HOW MANY COLUMNS ? : 6
(1) COLUMN NO. :
```

50.2.7 The next series of specifications determine which columns from which TABLES will comprise the new TABLE.

A hyphen before a column number entry specifies a column in the TABLE in the FILE. A plain number entry specifies a column in the TABLE in the MASTER BUFFER. The order in which the column numbers are entered determines their order in the new TABLE.

PIPS will continue to ask for column number entries up to the number of columns specified in 50.2.6.

```
(1) COLUMN NO. : 1
(2) COLUMN NO. : 2
(3) COLUMN NO. : 3
(4) COLUMN NO. : 4
(5) COLUMN NO. : -2
(6) COLUMN NO. : -3
```

According to these entries, Columns 1-4 of the original TABLE in the MASTER BUFFER will appear in the same order in the new TABLE, followed by columns 2 and 3 of the TABLE in the MASTER FILE.

NOTE: IF THE TOTAL NUMBER OF CHARACTERS OF THE COLUMNS SPECIFIED EXCEEDS 150, THE MAXIMUM WIDTH OF A PIPS PAGE, THE "NO. OF COLUMNS" PROMPT WILL BE DISPLAYED AFTER INPUT TO THE LAST "COLUMN NO." PROMPT. MAKE WHATEVER CORRECTIONS ARE NECESSARY IN THE SPECIFICATIONS AND BEGIN AGAIN WITH THE "NO. OF COLUMNS" PROMPT.

50.2.8 The command will execute and the results will be displayed on the CRT along with the "TRY AGAIN" prompt:

```
TRY AGAIN ? (Y,N) :
```

Enter "N" to return to the COMMAND MODE. A "Y" entry would take you back to the second step of the procedure where you can make new specifications beginning with the "DOCKING, ARRANGE, UPDATE" prompt.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F ----- 97
AU*--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC ------ 53 | EF---226 | FT----248

COLUMN ARRANGE: A BRANCH

C A

```
1  : <EMPLOYEES: NORTH & SOUTH SHOPS>                          ( 0. 0. 0) F27
2  :
3  :  NUMBER  NAME                 TELEPHONE   DAY OFF  HOURS  OVERTIME
4  :
5  :  S3      BENCH, RALPH         951-1679    WED
6  :  N2      BLOOM, ALAN          782-8756    FRI        8         2
7  :  S6      BREEN, GEORGE        826-7553    WED
8  :  S5      BROWN, DICK          791-5489    TUE
9  :  N10     BROWNYER, BOB        732-2965    SUN
10 :  S2      BURK, BOB            549-2389    SAT        5
11 :  N1      HARRIS, JUDY         821-7432    WED
12 :  N7      HARRIS, SALLI        721-9078    MON
13 :  N9      HEWITT, DENNIS       721-8937    SUN        8         4
14 :  N6      JONES, BILLIE        822-5829    SAT        6
15 :  N5      KISMAN, MIKE         631-6745    SUN
16 :  N3      MARSHALL, TOM        879-5239    SUN
17 :  S1      MYER, BOB            876-2417    SUN
18 :  S4      ROGERS, TOM          541-7777    SUN        8         8
19 :  S7      SCULLY, RALPH        223-2349    THU
20 :  N4      SILKOFF, BILL        345-1287    THU
21 :  S8      SWAILES, BILL        488-3327    SUN
22 :  S10     WALTZ, RON           622-7531    SAT
23 :  S9      WARGO, BILL          299-5133    FRI
24 :  N8      ZOLLINGER, LINDA     731-4561    WED
25 :
26 : comment :
27 : f8,20,11,9,7,10,/4
```

50.2.9 To change the title or revise the comments of the new TABLE, execute the CT and CC Commands.

PROMPTS C A

```
* SELECT COMMAND = CA
DOCKING, ARRANGE OR UP DATA ? (D,A,U) : A
PAGE NUMBER(S) ((WITH(,)),B,C) :
ITEM COLUMN (BUFFER) :
ITEM COLUMN (FILE) :
HOW MANY COLUMNS ? :
(1) COLUMN NO. :
:
:
:
:
( ) COLUMN NO. :
TRY AGAIN ? (Y,N) : N          TRY AGAIN ? (Y,N) : Y
* SELECT COMMAND =             DOCKING, ARRANGE OR UP DATE ? (D,A,U) :
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

CA COLUMN ARRANGE: U BRANCH

51.1 CA COMMAND: THE "U" BRANCH

In this section we will cover the third and final branch of the CA Command.

The "U" Branch of the CA Command is used to compare data in an index column in a TABLE in the MASTER BUFFER with data in an index column in the MASTER FILE or SUB FILE. Lines in the FILE which contain data that appears in both TABLES may be revised with calculations involving data from the MASTER BUFFER.

The calculation or revision is performed by specifying an operational sign (e.g. "+"), the column number(s) in the MASTER BUFFER, and the column number(s) in the FILE.

The "U" Branch is useful in such business applications as inventory control where it is very effective in updating a ledger with a single operation.

NOTE: THE "U" BRANCH OF THE CA COMMAND CANNOT BE USED TO RE-ARRANGE COLUMNS.

51.2 CA COMMAND: "U" BRANCH EXECUTION

We're going to update this TABLE which contains the total number of hours worked by each employee for the pay period from 15-30 November. This TABLE (PAGE 16) will remain in the MASTER FILE during execution of the "U" Branch:

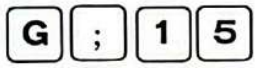
<NORTH & SOUTH SHOP: TOTAL HOURS> (0. 0. 0) F27

NUMBER	NAME	TELEPHONE	DAY OFF	HOURS	OVERTIME
S3	BENCH, RALPH	951-1679	WED	80	15
N2	BLOOM, ALAN	782-8756	FRI	80	18
S6	BREEN, GEORGE	826-7553	WED	80	18
S5	BROWN, DICK	791-5489	TUE	78	10
N10	BROWNYER, BOB	732-2965	SUN	60	5
S2	BURK, BOB	549-2389	SAT	80	8
N1	HARRIS, JUDY	821-7432	WED	75	5
N7	HARRIS, SALLI	721-9078	MON	80	16
N9	HEWITT, DENNIS	721-8937	SUN	80	20
N6	JONES, BILLIE	822-5829	SAT	70	5
N5	KISMAN, MIKE	631-6745	SUN	80	7
N3	MARSHALL, TOM	879-5239	SUN	80	26
S1	MYER, BOB	876-2417	SUN	80	28
S4	ROGERS, TOM	541-7777	SUN	80	28
S7	SCULLY, RALPH	223-2349	THU	75	10
N4	SILKOFF, BILL	345-1287	THU	80	5
S8	SWAILES, BILL	488-3327	SUN	72	0
S10	WALTZ, RON	622-7531	SAT	80	18
S9	WARGO, BILL	299-5133	FRI	80	0
N8	ZOLLINGER, LINDA	731-4561	WED	72	0

comment :
f8,20,11,9,7,10,/4

COLUMN ARRANGE: U BRANCH

We'll update the TABLE in the MASTER FILE with this smaller TABLE which contains the number of hours for one working day. When we execute this command, this is the TABLE (PAGE 15) which will be in the MASTER BUFFER:



<EMPLOYEE HOURS: 30 NOV 82>

NAME	HOURS	OVERTIME
BLOOM, ALAN	8	2
BURK, BOB	5	
HEWITT, DENNIS	8	4
JONES, BILLIE	6	
ROGERS, TOM	8	8

comment :
f20,7,10,/4

The prompts and specifications for the "U" Branch are similar to those for the "A" Branch introduced in the previous section.

51.2.1 If you are working through the examples as a practical exercise, first read Steps 51.2.2-51.2.9 carefully, then execute the example using the specifications outlined in 51.2.10.

NOTE: THERE MUST BE AN INDEX COLUMN WHICH IS CONTAINED IN BOTH THE TABLE IN THE MASTER BUFFER AND THE TABLE IN THE FILE. LIKE THE "A" BRANCH, THE ORDER OF THE DATA IN THESE INDEX COLUMNS IS IRRELAVANT, BUT THE FORMATS MUST BE IDENTICAL.

51.2.2 Execute the G Command. The TABLE in the MASTER BUFFER will contain the data to be used to update a TABLE in the MASTER FILE or SUB FILE.

```
* SELECT COMMAND = CA
DOCKING, ARRANGE, UP DATE ? (D,A,U) : U
```

51.2.3 PAGE NUMBER(S) ((WITH(,))B,C) :

PIPS is asking for the number of the PAGE in the MASTER FILE or SUB FILE which contains the TABLE to be updated. Enter the appropriate page number or block of PAGES. The next prompt will be:

51.2.4 ITEM COLUMN (BUFFER) :

PIPS is asking for the number of the INDEX COLUMN of the TABLE in the MASTER BUFFER. Specify the column which contains data that appears as names, titles or numbers in both TABLES.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75 |

C A COLUMN ARRANGE: U BRANCH

51.2.5 ITEM COLUMN (FILE) :

Here we specify the number of the INDEX COLUMN in the FILE.

The data in this INDEX COLUMN is compared to the data of the INDEX COLUMN in the MASTER BUFFER. When matching lines of data are found, an update calculation will be performed.

51.2.6 UPDATE KIND ? (T,+,-,*,/,M,m,E) :

Now we must specify the type of operations to be performed during the update by entering one of the following characters:

T : REPLACE
\+ : ADDITION
\- : SUBTRACTION
* : MULTIPLICATION
/ : DIVISION
M : MAXIMUM
m : MINIMUM
E : END

51.2.7 SOURCE COLUMN :

We now specify the number of the column in the TABLE in the MASTER BUFFER that contains the data to be used in the update operation.

51.2.8 DESTINATION COLUMN NO.:

PIPS is asking for the number of the column in the TABLE in the FILE which will be updated with the data from the column in the MASTER BUFFER (specified in the previous step).

NOTE: TO DESIGNATE A COLUMN NUMBER OF THE PAGE IN THE MASTER FILE OR SUB FILE, IT IS NOT NECESSARY TO PREFIX THE NUMBER WITH A "-" AS WE DID FOR THE "A" BRANCH OF THE CA COMMAND.

Procedures 51.2.6-51.2.8 can be repeated as many times as necessary, depending on how many columns are to be updated. To end the series, enter "E" and press "RETURN".

UPDATE KIND ? (T,+,-,*,/,M,m,E) : E

After "RETURN" is pressed, the TABLE in the MASTER FILE or SUB FILE will appear on the CRT at which time you will see the update executed on the specified columns. When the columns have been updated, the updated TABLE will disappear from the CRT and be COPIED AUTOMATICALLY BACK TO THE SAME PAGE IN THE MASTER FILE OR SUB FILE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

COLUMN ARRANGE: U BRANCH

C A

NOTE: ONCE THIS COMMAND HAS BEEN EXECUTED, THE DATA CANNOT BE RECOVERED IN ITS ORIGINAL FORM. IF THE DATA FROM THE ORIGINAL TABLE IN THE FILE MUST BE SAVED, RECORD IT ON A SEPARATE PAGE PRIOR TO EXECUTION OF THIS COMMAND. ERRORS IN SPECIFICATIONS TO PROMPTS IN THE EXECUTION OF THIS COMMAND, MAY RESULT IN THE ACCIDENTAL LOSS OF DATA.

51.2.9 TRY AGAIN ? (Y,N) :

To return to the COMMAND MODE, enter "N", then press "RETURN".

A "Y" entry would take us back to the "DOCKING,ARRANGE,UPDATE" prompt. From there we can proceed to update other TABLES on different PAGES with the data in the MASTER BUFFER.

51.2.10 Follow the prompts and specifications below as the "U" Branch is executed.

```
* SELECT COMMAND = G;15
* SELECT COMMAND = CA
DOCKING, ARRANGE, OR UP DATE (D,A,U) : U
PAGE NUMBER(S) ((WITH(,),B,C) : 16
ITEM COLUMN (BUFFER) : 1
ITEM COLUMN (FILE) : 2
UPDATE KIND ? (T,+,-,*,/,M,m,E) : +
SOURCE COLUMN NO. : 2
DESTINATION COLUMN NO. : 5

UPDATE KIND ? (T,+,-,*,/,M,m,E) : +
SOURCE COLUMN NO. : 3
DESTINATION COLUMN NO. : 6

UPDATE KIND ? (T,+,-,*,/,M,m,E) : E
TRY AGAIN ? (Y,N) : N
* SELECT COMMAND =
```

RESULTS (Next Page)

MASTER BUFFER

(EMPLOYEE HOURS: 30 NOV 82)

NAME	HOURS	OVERTIME
BLOOM, ALAN	8	2
BURK, BOB	5	
HEVITT, DENNIS	8	4
JONES, BILLIE	6	
ROGERS, TOM	8	8

comment :
f20,7,10,/4

MASTER FILE

(NORTH & SOUTH SHOP: TOTAL HOURS) (0, 0, 0) F27

NUMBER	NAME	TELEPHONE	DAY OFF	HOURS	OVERTIME
S3	BENCH, RALPH	951-1679	WED	80	15
N2	BLOOM, ALAN	782-8756	FRI	80	18
S6	BREEN, GEORGE	826-7553	WED	80	18
S5	BROWN, DICK	791-5489	TUE	78	10
N10	BROWNYER, BOB	732-2965	SUN	60	5
S2	BURK, BOB	549-2389	SAT	80	8
N1	HARRIS, JUDY	821-7432	WED	75	5
N7	HARRIS, SALLI	721-9078	MON	80	16
N9	HEVITT, DENNIS	721-8937	SUN	80	20
N6	JONES, BILLIE	822-5829	SAT	70	5
N5	KISMAN, MIKE	631-6745	SUN	80	7
N3	MARSHALL, TOM	879-5239	SUN	80	26
S1	MYER, BOB	876-2417	SUN	80	28
S4	ROGERS, TOM	541-7777	SUN	80	28
S7	SCULLY, RALPH	223-2349	THU	75	10
N4	SILKOFF, BILL	345-1287	THU	80	5
S8	SWAILES, BILL	488-3327	SUN	72	0
S10	WALTZ, RON	622-7531	SAT	80	18
S9	WARGO, BILL	299-5133	FRI	80	0
N8	ZOLLINGER, LINDA	731-4561	WED	72	0

comment :
f8,20,11,9,7,10,/4

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

C A COLUMN ARRANGE: U BRANCH

<NORTH & SOUTH SHOP: TOTAL HOURS> (0. 0. 0) F27

NUMBER	NAME	TELEPHONE	DAY OFF	HOURS	OVERTIME
S3	BENCH, RALPH	951-1679	WED	80	15
N2	BLOOM, ALAN	782-8756	FRI	80	18
S6	BREEN, GEORGE	826-7553	WED	80	18
S5	BROWN, DICK	791-5489	TUE	78	10
N10	BROWNYER, BOB	732-2965	SUN	60	5
S2	BURK, BOB	549-2389	SAT	80	8
N1	HARRIS, JUDY	821-7432	WED	75	5
N7	HARRIS, SALLI	721-9078	MON	80	16
N9	HEWITT, DENNIS	721-8937	SUN	80	20
N6	JONES, BILLIE	822-5829	SAT	70	5
N5	KISMAN, MIKE	631-6745	SUN	80	7
N3	MARSHALL, TOM	879-5239	SUN	80	26
S1	MYER, BOB	876-2417	SUN	80	28
S4	ROGERS, TOM	541-7777	SUN	80	28
S7	SCULLY, RALPH	223-2349	THU	75	10
N4	SILKOFF, BILL	345-1287	THU	80	5
S8	SWAILES, BILL	488-3327	SUN	72	0
S10	WALTZ, RON	622-7531	SAT	80	18
S9	WARGO, BILL	299-5133	FRI	80	0
N8	ZOLLINGER, LINDA	731-4561	WED	72	0

comment :
f8,20,11,9,7,10,/4

+

<EMPLOYEE HOURS: 30 NOV 82>

NAME	HOURS	OVERTIME
BLOOM, ALAN	8	2
BURK, BOB	5	
HEWITT, DENNIS	8	4
JONES, BILLIE	6	
ROGERS, TOM	8	8

comment :
f20,7,10,/4

MASTER FILE

<NORTH & SOUTH SHOP: TOTAL HOURS> (0. 0. 0) F27

NUMBER	NAME	TELEPHONE	DAY OFF	HOURS	OVERTIME
S3	BENCH, RALPH	951-1679	WED	80	15
N2	BLOOM, ALAN	782-8756	FRI	88	20 ←
S6	BREEN, GEORGE	826-7553	WED	80	18
S5	BROWN, DICK	791-5489	TUE	78	10
N10	BROWNYER, BOB	732-2965	SUN	60	5
S2	BURK, BOB	549-2389	SAT	85	8 ←
N1	HARRIS, JUDY	821-7432	WED	75	5
N7	HARRIS, SALLI	721-9078	MON	80	16
N9	HEWITT, DENNIS	721-8937	SUN	88	24 ←
N6	JONES, BILLIE	822-5829	SAT	76	5 ←
N5	KISMAN, MIKE	631-6745	SUN	80	7
N3	MARSHALL, TOM	879-5239	SUN	80	26
S1	MYER, BOB	876-2417	SUN	80	28
S4	ROGERS, TOM	541-7777	SUN	88	36 ←
S7	SCULLY, RALPH	223-2349	THU	75	10
N4	SILKOFF, BILL	345-1287	THU	80	5
S8	SWAILES, BILL	488-3327	SUN	72	0
S10	WALTZ, RON	622-7531	SAT	80	18
S9	WARGO, BILL	299-5133	FRI	80	0
N8	ZOLLINGER, LINDA	731-4561	WED	72	0

comment :
f8,20,11,9,7,10,/4

ACM - - 143 | BF - - - - 105 | CA-D - - - 58 | CF - - - 55 | CT - - - - - - - 41 | DL - - - - 49 | END - - - 4
AS - - - 267 | BS - - - - 74 | CA-U - - 214 | CM - - 275 | CTRL - - - - 237 | DRL - - - 64 | F - - - - - 97
AU# - - 270 | BT - - - - 21 | CAL - - - - 97 | COL - - 87 | D - - - - - - - 97 | ED - - - 223 | FO - - - 110
B - - - - 33 | CA-A - - 209 | CC - - - - - 42 | CS - - - 185 | DC - - - - - - 53 | EF - - - 226 | FT - - - - 248

COLUMN ARRANGE: U BRANCH

C A

PROMPTS C A

```
* SELECT COMMAND = CA
DOCKING , ARRANGE , UP DATE ? (D,A,U) : U
PAGE NUMBER(S) ? ((WITH (,)),B,C) :
ITEM COLUMN (BUFFER) :
ITEM COLUMN (FILE) :

UPDATE KIND (T,+,-,*,/,M,m,E) :
SOURCE COLUMN NO. :
DESTINATION COLUMN NO. :

UPDATE KIND  (T,+,-,*,/,M,m,E) :
SOURCE COLUMN NO. :
DESTINATION COLUMN NO. :
:
:
UPDATE KIND ? (T,+,-,*,/,M,m,E) : E
TRY AGAIN ? (Y,N) : N
* SELECT COMMAND =
```


G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

XVII. THE NON-FORMATTED PAGE

EDIT

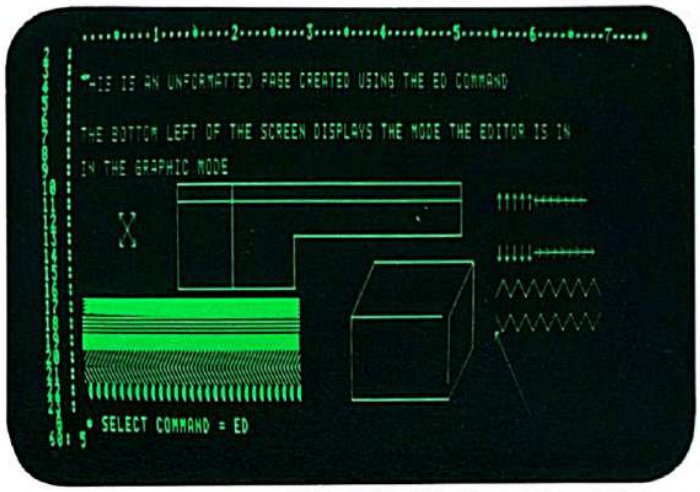
ENTRY WITH FORMAT

LIST WITH FORMAT

G - - - - 26 | IC-Y- - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF - - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - - 245 | SET- - -89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- -203 | TRM - - - 75

52.1 THE ED COMMAND (Edit)

The ED Command is used to create NON-FORMATTED PAGES in the MASTER BUFFER. It can also be used to edit FORMATTED PAGES.


THIS IS AN UNFORMATTED PAGE CREATED USING THE ED COMMAND
THE BOTTOM LEFT OF THE SCREEN DISPLAYS THE MODE THE EDITOR IS IN
IN THE GRAPHIC MODE
* SELECT COMMAND = ED

52.2 ED COMMAND: PAGE CREATION

52.2.1 To create a NON-FORMATTED PAGE, enter "O", specify the title of the PAGE, and press "RETURN".

52.2.2 Press "ESC" then enter "ED". The cursor will be displayed, blinking at the upper left corner of the CRT.

52.2.3 Use the DIRECTION ARROWS at the upper right of the keyboard to move the cursor around the screen.

52.3 ED COMMAND: MODES

There are three modes from which you may choose after entering "ED" and pressing "RETURN".

52.3.1 The EDIT MODE is in effect immediately after entering "ED" and pressing "RETURN". PIPS will remain in this mode until specified otherwise. In the EDIT MODE, any character on the keyboard may be entered.

(1) Pressing the SPACE BAR erases the character at the cursor position and the cursor moves one space to the right.

G - - - - 26 | IC-Y---46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD--195
GR - - 119 | IN- - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- - 80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - - 276 | SFN- - 203 | TRM - - - 75

(2) Pressing the "DEL" (Delete) key erases the character at the cursor position. The cursor remains stationary and all characters of the string to the right of the cursor move one position to the left.

(3) Pressing the "TAB" key moves all lines on the PAGE below the cursor position down one line.

NOTE: PRESSING "I" WHILE HOLDING DOWN THE "CTRL" KEY HAS THE SAME EFFECT AS PRESSING "TAB"

(4) Pressing "D" while holding down the "CTRL" key moves all lines below the cursor position up one line. If there is data on the cursor line, it will be deleted.

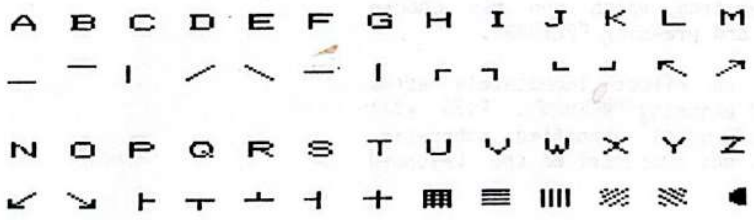
NOTE: IN THE EDIT MODE, THE "E" KEY ON THE NUMERIC PAD CANNOT BE USED AS A "RETURN" KEY.

52.3.2 The INSERT MODE is entered by pressing "L" while holding down the "CTRL" key. To return to the EDIT MODE, repeat this procedure.

(1) In the INSERT MODE, the SPACE BAR moves the cursor to the right. At the same time, all characters in the string to the right of the cursor move one position to the right each time the SPACE BAR is pressed.

(2) Pressing the "DEL" (Delete) key erases the character at the cursor position. The cursor remains stationary and all characters of the string to the right of the cursor move one position to the left.

52.3.3 The GRAPHIC MODE allows access to the many graphic symbols illustrated below.



ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F------97
AU✱--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

Press "G" while holding down the "CTRL" key to enter the GRAPHIC MODE. Repeat this procedure to return to the EDIT MODE.

NOTE: GRAPHIC SYMBOLS AND THEIR LOCATIONS ON THE KEYBOARD MAY VARY DEPENDING ON THE COUNTRY FOR WHICH THE HARDWARE WAS MADE.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

E F ENTRY WITH FORMAT

53.1 THE EF COMMAND (Entry With Format)

The EF Command is extremely useful in business applications because it allows data entry into a TABLE from a form which you create on the CRT display.

This means that the person making entries into the TABLE may do so in a manner very similar to typing data on a form in a typewriter. The very important difference is that when the data is entered on the form, it is also automatically written to a TABLE in a specified FILE in EXTERNAL STORAGE.

Here are the basic steps which should be followed in this command:

a. CREATING THE FORM in which data is to be entered.

b. CREATING THE TABLE to accept data from the form.

c. ENTERING DATA INTO THE FORM on the CRT.

53.2 CREATING THE FORM

53.2.1 First, make a PAGE in the MASTER BUFFER with the "O" Command. Give the PAGE a title, then press "ESC".

53.2.2 The form is created by executing the "ED" Command. This allows you to draw a form on the CRT. All the characters and graphic symbols available may be used to make your form as ornate or original as possible. For the purposes of explanation here, we will keep the form as simple as possible.

53.2.3 For our example, we will create a system for recording data about store customers.

First we'll determine what information we want to record about each customer and how the format will look on the screen. We'll also determine how much space will be needed for each entry. We've designed it this way:

```
1  : <FORM - CUSTOMER LIST>
2  :
3  : 1.  NAME
4  :
5  : 2.  SEX          3.  HT        4.  WT
6  :
7  : 5.  BIRTH DATE
8  :
9  : 6.  ADDRESS
10 :
11 : 7.  TELEPHONE
12 :
13 : 8.  SHOP
14 :
```

53.2.4 Next, we have to specify where each data entry will begin and how many characters will constitute an entry.

Any character on the keyboard, excluding a period (.), comma (,), semicolon (;) or space, may be used to designate where each data entry will start for each item. We'll use the "@" for our designation.

```
1  : <FORM - CUSTOMER LIST>
2  :
3  : 1.  NAME @
4  :
5  : 2.  SEX @        3.  HT @      4.  WT @
6  :
7  : 5.  BIRTH DATE @
8  :
9  : 6.  ADDRESS @
10 :
11 : 7.  TELEPHONE @
12 :
13 : 8.  SHOP @
14 :
```

53.2.5 Now the number of characters which will be reserved for each data entry can be specified. This is done by entering one of the following letter codes. These codes determine not only the number of characters reserved for each entry, but also allow you to specify the type of data which will be accepted from the keyboard for each entry.

X : will accept ANY KEYBOARD CHARACTER.

A : ONLY ALPHA CHARACTERS will be accepted.

B : ONLY ALPHA CHARACTERS AND SPACES will be accepted.

K : ONLY NUMBERS will be accepted.

N : ONLY NUMBERS FROM 0 TO 9 will be accepted.

F : ONLY NUMBERS AND SPACES will be accepted.

R : ONLY A "Y" OR "N" will be accepted.

Look at this complete form and determine the specifications made with the letter codes.

```
1  : <FORM - CUSTOMER LIST>
2  :
3  : 1.  NAME  @XXXXXXXXXXXXXXXXXXXX
4  :
5  : 2.  SEX  @AAAAA  3.  HT  @KKKK  4.  WT  @KKKKK
6  :
7  : 5.  BIRTH DATE  @NNXNNXNNXXXX
8  :
9  : 6.  ADDRESS  @XXXXXXXXXXXXXXXXXXXX
10 :
11 : 7.  TELEPHONE  @NNNXNNNNXXX
12 :
13 : 8.  SHOP  @AAAAAAA
14 :
```

53.2.6 Make a note of the number of characters reserved for each data item. We will make a TABLE to receive this data from the form.

NOTE: THE COLUMNS IN THE TABLE WE MAKE MUST BE IN THE EXACT ORDER AS THEY APPEAR IN THE FORM, AND BE EXACTLY THE SAME WIDTH AS THE RESERVED AREA FOR EACH DATA ITEM IN THE FORM.

53.2.7 We have just completed the DESIGN PAGE. Press "ESC" and copy the DESIGN PAGE to an empty PAGE in the MASTER FILE.

53.3 CREATING THE TABLE

53.3.1 Create a TABLE FORMAT to accept data from the form of the DESIGN PAGE created in the previous steps.

```
1 : <CUSTOMER LIST  >                              ( 0, 0, 0)
2 :
3 : NAME                 SEX  HT   WT  BIRTH DATE          ADDRESS  TELEPHONE   SHOP
4 :
```

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

53.3.2 Execute the P Command to put the TABLE PAGE in a file.

53.4 EF COMMAND EXECUTION

53.4.1 * SELECT COMMAND = EF

53.4.2 DESIGN PAGE NO. : 18

Enter the number of the DESIGN PAGE we've just completed.

53.4.3 DATA : @

Enter the character we used to designate the beginning of each data item.

53.4.4 START PAGE NO. : 7

Enter the number of the PAGE which contains the TABLE.

NOTE: THE FORMAT OF THE DESIGN PAGE IS IDENTICAL TO THAT OF THE "CUSTOMER LIST" FOUND ON PAGE 7, SO WE CAN NOW UPDATE THIS TABLE.

After a few seconds, the form will appear on the CRT.

53.4.5 We can now enter data into the form. After each entry, press "RETURN". The cursor will move to the head of the next data item.

53.4.6 REENTRY (NUMBER), NEXT (RETURN), NEXT PAGE (N), END (E) : E

After entering the last item on the form, before pressing "RETURN", PIPS offers four options:

(1) REENTRY: If you want to correct an item on the form, enter the number of that item and press "RETURN". The cursor will move to the head of the specified data item and wait for entry. ALL ITEMS SUBSEQUENT TO THE SPECIFIED ITEM MUST BE REENTERED AS WELL.

(2) NEXT: Execute to go on to the next entry form.

(3) NEXT PAGE: To begin entry on the PAGE after the PAGE specified in response to the "STARTING PAGE" prompt. PIPS will go on to the next PAGE automatically when the present PAGE is full. If for any reason you want to go on to the next PAGE, execute this option.

E F ENTRY WITH FORMAT

(4) END: This will end entry and display the TABLE with the previous entries and the data just entered.

E RETURN

```
1  : <CUSTOMER LIST 15>                                    ( 0. 0. 0) F36
2  :
3  :  NAME                  SEX  HT   WT  BIRTH DATE      ADDRESS          TELEPHONE  SHOP
4  :
5  :  TAYLOR, CHERYL          F  22  123   25/10/60    7495 LAWYER RD.     774-1737  NORTH
6  :  WRIGHT, REGGIE          M   5  145   28/02/42 5516 SPRINGDALE RD.    284-2287  WEST
7  :  WINTERS, KARL           M  14  180   21/11/50       5 MOYER PL.      231-4498  EAST
8  :  ROBERTS, MARSHA         F   3  115   08/07/38    3618 ROBB AVE.      232-3240  EAST
9  :  PITMAN, LOUIS           M   1  134   28/02/44   454 EASTERN AVE.     229-2376  WEST
10 :  TURNAU, ALMA            F   3  102   01/08/62   330 FOREST AVE.      941-9834  WEST
11 :  FOREACRE, CHRIS         F   2  106   23/11/64  1933 WAYLAND AVE.     328-1734  WEST
12 :  SMITH, CHERYL           F   2  104   14/03/30   1473 EATON AVE.      874-6747  SOUTH
13 :  SEAL, KATHY             F   3  110   12/04/48    6520 MEIS AVE.      232-1589  NORTH
14 :  RUMPKE, BERNARD         M  16  210   23/06/32 1234 NORTH BEND RD.    874-8221  SOUTH
15 :  HUXEL, GUY              M   2  150   15/02/54     207 HOLLY LN.      861-7339  WEST
16 :  PEABODY, ANN            F   8  115   18/09/50  2201 TOWNHILL RD.     531-8890  NORTH
17 :  RAITT, TERRY            M   9  160   03/02/48  5 GRIFFITHS AVE.     922-0075  SOUTH
18 :  SEAL, RICHARD           M   1  178   13/01/49    6520 MEIS AVE.      232 1589  WEST
19 :  HUMES, THOMAS           M   9  220   12/01/49  2219 MADISON AVE.     661-9780  NORTH
20 :  GITTLEMAN, BETTY        F   4  120   23/08/29      12 CINDY LN.      422-7890  EAST
21 :  MYERS, PEGGY            F   3  109   13/12/40   1419 SUTTON DR.      876-5589  NORTH
22 :  MARSHALL, NANCY         F   3  116   24/03/45   1512 BEECH AVE.      749-3398  SOUTH
23 :  GOLDBERG, JODY          M   8  122   25/07/32     408 BAUER RD.      231-8907  SOUTH
24 :  RUSH, BARBARA           F  10  140   31/05/44   9831 CAPSTAN DR.     777-1889  SOUTH
25 :  WELLS, DANIEL           M  15  145   31/12/55    1086 LANNY LN.      221-8140  SOUTH
26 :  MOUCH, WILLIAM          M  14  220   23/03/21 2186 HARRISON AVE.     231-6448  WEST
27 :  JACKSON, HOLLY          F  11  125   19/08/44   5151 CAPITOL DR.     285-2299  WEST
28 :  GREENWELL, STEVE        M  15  250   23/09/48     2134 AIKENSIDE     631-9021  NORTH
29 :  HART, BUDDY             M   8  152   09/05/59    789 WILFORD RD.     229-3880  EAST
30 :  FRANKL, MARGARET        F   3  115   16/06/37  1220 GULFPORT DR.     821-4589  EAST
31 :  TORREANO, MICHAEL       M  13  195   12/12/48     6906 THORNDIKE     332-8970  NORTH
32 :  REIS, JANE              F   1  117   15/09/52  4639CLAYTON DR.       821-3387  WEST
33 :        BRAND, RUSSELL    M  11  170   12/08/32  1267 WAYCROSS RD.     341-0947  EAST
34 :
35 : comment :
36 : f20,5,4,5,12,20,11,7,/4
```

R F ; 1 ; L

```
31 :  TORREANO, MICHAEL       M  13  195   12/12/48     6906 THORNDIKE     332-8970  NORTH
32 :  REIS, JANE              F   1  117   15/09/52  4639CLAYTON DR.       821-3387  WEST
33 :  BRAND, RUSSELL          M  11  170   12/08/32  1267 WAYCROSS RD.     341-0947  EAST
34 :
35 : comment :
36 : f20,5,4,5,12,20,11,7,/4
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

ENTRY WITH FORMAT E F

PROMPTS E F

```
* SELECT COMMAND = EF
DESIGN PAGE NO. :
DATA:
START PAGE NO. :
REENTRY(Number), NEXT(Return), NEXT PAGE(N), END(E) :
* SELECT COMMAND =
```


G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST --- 170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

LF LIST WITH FORMAT

54.1 THE LF COMMAND (List With Format)

The LF Command allows you to specify a format for printing out all or selected data items in TABLES in the MASTER FILE, SUB FILE, or MASTER BUFFER.

54.2 LF COMMAND EXECUTION

We will show you how to make a format, then take data from the TABLE below (PAGE 10) to make a slip for individual sales, crediting each clerk with his or her code number.

<NORTH SHOP SALES> (0. 0. 0) F58

DATE	CLERK	DEPARTMENT	MAKER	STOCK #	PRICE
12/19	N1	DRESSES	SACHS & RICHARDS	SR0411	60
12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
12/19	N4	M.COATS	SACHS & RICHARDS	SR0644	215
12/19	N2	SHOES	BOSTON TOWN	BT2256	55
12/19	N2	SHOES	VAN CLAUSEN	VC0243	55
12/19	N7	W.SUITS	BOND STREET	BS0501	18
12/19	N7	DRESSES	SACHS & RICHARDS	SR0411	60
12/19	N3	SHOES	SACHS & RICHARDS	SR0281	65
12/19	N3	SHOES	BOSTON TOWN	BT0256	55
12/19	N5	M.COATS	BOND STREET	BS0610	310
12/19	N7	DRESSES	BOND STREET	BS0486	110
12/19	N5	M.COATS	BOSTON TOWN	BT0647	225
12/19	N1	DRESSES	BOSTON TOWN	BT0456	85
12/19	N8	DRESSES	SACHS & RICHARDS	SR0421	75
12/19	N7	DRESSES	BOSTON TOWN	BT0455	65
12/19	N4	M.SUITS	SACHS & RICHARDS	SR0791	210
12/19	N1	DRESSES	BOSTON TOWN	BT0455	65
12/19	N9	M.SUITS	SACHS & RICHARDS	SR0791	210
12/19	N7	DRESSES	SACHS & RICHARDS	SR0431	85
12/19	N8	DRESSES	VAN CLAUSEN	VC0449	55
12/19	N1	DRESSES	VAN CLAUSEN	VC0449	55
12/19	N6	W.COATS	BOND STREET	BS0395	220
12/19	N6	W.COATS	BOND STREET	BS0399	300
12/19	N7	W.SUITS	VAN CLAUSEN	VC0588	215
12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
12/19	N7	W.COATS	VAN CLAUSEN	VC0367	180
12/19	N6	W.COATS	BOSTON TOWN	BT0346	135
12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
12/19	N6	W.SUITS	BOND STREET	BT0500	210
12/19	N4	M.SUITS	SACHS & RICHARDS	SR0792	215
12/19	N10	M.SUITS	BOSTON TOWN	BT0733	315
12/19	N7	W.SUITS	SACHS & RICHARDS	SR0534	310
12/19	N3	SHOES	SACHS & RICHARDS	SR0282	80
12/19	N8	DRESSES	SACHS & RICHARDS	SR0431	85
12/19	N5	M.SUITS	BOND STREET	BS0717	135
12/19	N6	W.SUITS	SACHS & RICHARDS	SR0533	250
12/19	N2	SHOES	BOND STREET	BS0220	85
12/19	N2	SHOES	SACHS & RICHARDS	SR0281	65
12/19	N7	W.COATS	SACHS & RICHARDS	SR0372	150
12/19	N4	M.COATS	SACHS & RICHARDS	SR0640	135
12/19	N9	M.COATS	BOND STREET	BS0611	350
12/19	N3	SHOES	BOND STREET	BS0220	85
12/19	N4	M.SUITS	BOND STREET	BS0784	350
12/19	N6	W.COATS	SACHS & RICHARDS	SR0398	300
12/19	N1	DRESSES	SACHS & RICHARDS	SR0421	75
12/19	N9	M.COATS	BOND STREET	BS0610	310
12/19	N3	SHOES	VAN CLAUSEN	VC0423	45
12/19	N10	M.COATS	SACHS & RICHARDS	SR0645	290
12/19	N10	M.SUITS	VAN CLAUSEN	VC0727	195
12/19	N8	DRESSES	BOND STREET	BS0486	110
12/19	N7	DRESSES	VAN CLAUSEN	VC0444	55

```
comment !
f6,7,12,20,12,7,/4
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F------97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

LIST WITH FORMAT [L] [F]

As in the procedures for the EF Command, we first determine the format of the printing by creating a NON-FORMATTED DESIGN PAGE. The DESIGN PAGE for this section is already prepared and stored on PAGE 19 of the demonstration diskette.

54.2.1 Create a DESIGN PAGE in the MASTER BUFFER.

[E] [D] [RETURN]

```
<INDIVIDUAL SALES REPORT FORM>
&10
----------------------------------------
&14
INDIVIDUAL SALES REPORT
&15

CLERK          %0,2
DATE           %0,1
DEPARTMENT     %0,3

MAKER          %0,4
STOCK #        %0,5
PRICE          %0,6

----------------------------------------
*
```

(1) Enter the format in which the data will be printed. The "%" mark indicates where a data item will be printed.

(2) In the next space, we specify the line number of the data, followed by a comma ",".

0, : A zero entered here will begin printing from the first line.

5, : Any number entry specifies the line from which printing can begin.

C, : This specifies that you want to print the same data item more than once on a line.

(3) Next specify the column number of the data you want printed at this location.

(4) Printer codes to control line advance and to print expanded or condensed characters may also be entered:

&10 : ONE LINE ADVANCE
&14 : EXPANDED CHARACTERS
&16 : CONDENSED CHARACTERS
&15 : RETURNS TO NORMAL PRINTING FROM EITHER &14 OR &16.

54.2.2 When the format is finished, enter "*" at the head of the line following the last line of the format.

L F LIST WITH FORMAT

54.2.3 Copy the DESIGN PAGE to a file.

NOTE: TO IMPROVE THE APPEARANCE OF THE LISTED FORMAT IN THIS EXAMPLE, WE HAVE EXECUTED THE RF COMMAND ON COLUMNS 1-5 AND STORED THIS TABLE ON PAGE 1 OF THE SUB FILE (S1).

R F RETURN

```
1  : <NORTH SHOP SALES>                                    ( 0. 0. 0) F58
2  :
3  : DATE  CLERK  DEPARTMENT  MAKER                STOCK #      PRICE
4  :
5  : 12/19 N1     DRESSES     SACHS & RICHARDS     SR0411          60
6  : 12/19 N2     SHOES       SACHS & RICHARDS     SR0281          65
7  : 12/19 N4     M.COATS     SACHS & RICHARDS     SR0644         215
8  : 12/19 N2     SHOES       BOSTON TOWN          BT2256          55
9  : 12/19 N2     SHOES       VAN CLAUSEN          VC0243          55
10 : 12/19 N7     W.SUITS     BOND STREET          BS0501          18
11 : 12/19 N7     DRESSES     SACHS & RICHARDS     SR0411          60
12 : 12/19 N3     SHOES       SACHS & RICHARDS     SR0281          65
13 : 12/19 N3     SHOES       BOSTON TOWN          BT0256          55
14 : 12/19 N5     M.COATS     BOND STREET          BS0610         310
15 : 12/19 N7     DRESSES     BOND STREET          BS0486         110
16 : 12/19 N5     M.COATS     BOSTON TOWN          BT0647         225
17 : 12/19 N1     DRESSES     BOSTON TOWN          BT0456          85
```

54.2.4 * SELECT COMMAND = LF

54.2.5 PAGE NUMBER(S) ((WITH(,)),B,C) : S1

Specify the number of the PAGE or PAGES from which data shall be taken to list in the new format.

54.2.6 DESIGN PAGE NO. : 19

Enter the number of the DESIGN PAGE.

```
INDIVIDUAL SALES REPORT

CLERK        N1
DATE         12/19
DEPARTMENT   DRESSES

MAKER        SACHS & RICHARDS
STOCK #      SR0411
PRICE            60
```

```
INDIVIDUAL SALES REPORT

CLERK        N2
DATE         12/19
DEPARTMENT   SHOES

MAKER        SACHS & RICHARDS
STOCK #      SR0281
PRICE            65
```

```
INDIVIDUAL SALES REPORT

CLERK        N4
DATE         12/19
DEPARTMENT   M.COATS

MAKER        SACHS & RICHARDS
STOCK #      SR0644
PRICE           215
```

```
INDIVIDUAL SALES REPORT

CLERK        N2
DATE         12/19
DEPARTMENT   SHOES

MAKER        BOSTON TOWN
STOCK #      BT2256
PRICE            55
```

PROMPTS L F

```
* SELECT COMMAND = LF
PAGE NUMBER(S) ? ((WITH (,)),B,C) :
DESIGN PAGE NUMBER :
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

XVIII. SIMULATION: THE CTRL@ COMMAND

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - -157 | TRS - - -73
GF - - 247 | IL - - - - 77 | LF - - - -232 | MT - - - 15 | PBACK - - - - 284 | SB - - - -76 | ST - - - 170 | UPD - -195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

SIMULATION CTRL—@

55.1 THE CTRL@ COMMAND

The CTRL @ Commmand puts PIPS in the RECALCULATION MODE.

We have already explained how to change data items in the TABLE using the W Command.

Many times when a data item in a TABLE is changed, several recalculations must be performed to reflect the change in other items in the table.

In the RECALCULATION MODE, the data is changed in the same way as in the W Command, and performs all calculations necessary to reflect the changes in other data in the table.

The RECALCULATION MODE is particularly useful in "what if" or simulation applications in planning. In this example, for instance, a change in the cost of one of the stock items would change the data at Line 5, Column 6, and also the total for Column 6. A change in a target figure would change the data on that line in both Columns 5 and 6, and the totals for both columns.

In order to have these changes reflected in the affected data positions on the table, calculations must be performed again. Without the RECALCULATION function, the corrections would have to be made using the W Command, and then the calculations done again in the CALCULATION MODE.

Using the RECALCULATION FUNCTION, you can specify what calculations are to be done whenever a particular data item is changed, and PIPS will carry out the calculations automatically each time a change is made.

In order to use the RECALCULATION function, a SPECIFICATION AND FORMULA page must be written. This page contains instructions telling PIPS the calculations to perform if data in a certain location in the table is changed.

With this SPECIFICATION AND FORMULAE page in the SUB BUFFER, and the table for which the SPECIFICATIONS AND FORMULAE was written in the MASTER BUFFER, the RECALCULATION function can be executed.

SPECIFICATIONS identify data positions in the TABLE which, when changed, will trigger specified calculations to be done on the TABLE.

FORMULAE consist of one or more calculations to be performed, and the locations in which the results are to be written.

G - - - - 26 | IC-Y---46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD- -195
GR - - 119 | IN- - - 282 | MAR- - 147 | NF - - 166 | PF - - - - - - - 245 | SET- - - 89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - - 44 | MAW- - 147 | O - - - - 9 | PROTECT- - -276 | SFN- -203 | TRM - - - 75

55.2 SPECIFICATION FORMAT

There are three positions in each SPECIFICATION. The first and second positions and the second and third positions are separated by commas.

The first and second positions specify the line and column, respectively. The third position specifies the number of the line in the SPECIFICATION AND FORMULAE page containing the calculation to be performed if a change is made at the data location specified in the first and second positions.

For example, the SPECIFICATION,

```
6,2,8
```

tells PIPS to perform the calculation on Line 8 of the SPECIFICATION AND FORMULAE page if the data at Line 6, Column 2 of the table is changed.

An asterisk (*) may be used in place of the line or column number to specify any line or any column. For example, the SPECIFICATION,

```
*,4,7
```

tells PIPS to perform the calculation in Line 7 of the SPECIFICATION AND FORMULAE page if data in any line in Column 4 of the TABLE is changed.

This is an example of a SPECIFICATION AND FORMULAE page. It was written to perform RECALCULATIONS on the table above.

```
1 : (MONTHLY SALES TARGETS - VAN CLAUSEN - EXAMPLE CTRL)( 0. 0. 0) N6
2 : *,2,4 *,3,5 *,4,4
3 : E
4 : M.,2*M.,4+M.,5!M.,5-(M.,2*M.,3)*M.,6!ADD(R5,9,5)*M11,5!ADD(R5,9,6)*M11,6
5 : M.,5-(M.,2*M.,3)*M.,6!ADD(R5,9,5)*M11,5!ADD(R5,9,6)*M11,6
6 : *
```

The first specification in Line 2 of the page tells PIPS that when any data is changed in the Column 2 (TARGET) of the TABLE in the MASTER BUFFER, the calculations written on Line 4 of the SPECIFICATION AND FORMULAE page are to be performed..

NOTE: AS MANY SPECIFICATIONS AS WILL FIT ON A LINE MAY BE WRITTEN, BUT EACH MUST BE SEPARATED BY A SPACE.

The second SPECIFICATION directs PIPS to Line 5 of the SPECIFICATION AND FORMULAE page, while the third SPECIFICATION directs the calculations on Line 4 to be carried out.

The line after all necessary SPECIFICATIONS have been made must contain an "E" at the left-most position. The "E" separates SPECIFICATIONS from FORMULAE.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC------53	EF---226	FT----248

FORMULAE are written nearly the same as in the CALCULATION MODE. Line or Column numbers, however, may be replaced by a period (.). A period in place of a line or column number indicates the position of the reverse field bar in the table at the time of execution of the change.

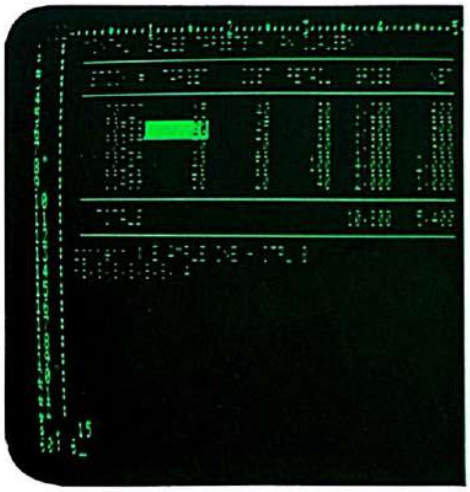
The SPECIFICATION in Line 2 of the SPECIFICATION AND FORMULAE PAGE tells PIPS to perform the calculations written on Line 4 of the SPECIFICATIONS AND FORMULAE page if a correction is made in Column 2 of the TABLE in the MASTER BUFFER.

Let's look at the first calculation.

M.,2*M.,4=M.,5

For purposes of explanation, we'll assume that the TARGET figure for STOCK # VC0727 was changed (Line 5, Column 2). This formula multiplies the data at the position of the reverse field bar when the change was made in Column 2 times the data in Column 4 (RETAIL) on the same line as the reverse field bar, and writes the results in Column 5 (GROSS) (the same line).

In a similar manner, all the calculations necessitated by the change of the single data item in Line 5, Column 2 are carried out, and the results are written where specified.



55.3 CTRL COMMAND EXECUTION

55.3.1 Get the SPECIFICATION AND FORMULAE page into the MASTER BUFFER, then with the TRS Command, put it in the SUB BUFFER.

55.3.2 Get the TABLE into the MASTER BUFFER.

Execute the W Command to put the reverse field bar anywhere in the table.

55.3.3 While holding down the CTRL key, press "@". A small "@" will appear at the lower left of the CRT. This indicates that PIPS is in the RECALCULATION MODE.

55.3.4 Using the direction arrow keys move the reverse field bar to the data item to be changed.

55.3.5 Enter the change and press RETURN.

55.3.6 All specified calculations will be carried out, and PIPS will wait for the next change.

G - - - - 26 | IC-Y - - - 46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT - - - 157 | TRS - - - 73
GF - - 247 | IL - - - - 77 | LF - - - - 232 | MT - - - 15 | PBACK - - - - 284 | SB - - - - 76 | ST - - - 170 | UPD - - 195
GR - - 119 | IN - - - 282 | MAR - - 147 | NF - - 166 | PF - - - - - - - 245 | SET - - - 89 | TD - - - 285 | W - - - 37
IC-N - - 80 | IR - - - - 44 | MAW - - 147 | O - - - - 9 | PROTECT - - - 276 | SFN - - 203 | TRM - - - 75

As many changes as desired may be made. To return to the COMMAND MODE press ESC.

55.3.7 This second example is somewhat more complex than the first, but the same principles apply.

```
1  : (SIMULATION - LOCATION SPECIFICATIONS AND FORMULAE) ( 0. 0. 0) N24
2  : *,2,7
3  : *,3,11
4  : *,4,16
5  : *,6,21
6  : E
7  : ADD[R6,15,2]=M17,2;M.,2+M.,7=M.,8;ADD[R6,15,8]=M17,8;
8  : ADD[C8,10,,]=M.,11;M.,3-M.,11=M.,12;ADD[R6,15,11]=M17,11;
9  : ADD[R6,15,12]=M17,12
10 : ;
11 : M.,3*.5=M.,9;M.,3-M.,4=M.,5;M.,5*M.,6/100=M.,7;
12 : ADD[R6,15,3]=M17,3;ADD[R6,15,5]=M17,5;ADD[R6,15,7]=M17,7;
13 : M.,2+M.,7=M.,8;ADD[R6,15,8]=M17,8;ADD[C8,10,,]=M.,11;
14 : M.,3-M.,11=M.,12;ADD[R6,17,11]=M17,11;ADD[R6,15,12]=M17,12
15 : ;
16 : M.,3-M.,4=M.,5;M.,5*M.,6/100=M.,7;ADD[R6,15,4]=M17,4;
17 : ADD[R6,15,7]=M17,7;M.,2+M.,7=M.,8;ADD[R6,15,8]=M17,8;
18 : ADD[C8,10,,]=M.,11;M.,3-M.,11=M.,12;ADD[R6,15,11]=M17,11;
19 : ADD[R6,15,12]=M17,12
20 : ;
21 : M.,5*M.,6/100=M.,7;ADD[R6,15,7]=M17,7;M.,2+M.,7=M.,8;
22 : ADD[C8,10,,]=M.,11;M.,3-M.,11=M.,12;ADD[R6,15,11]=M17,11;
23 : ADD[R6,15,12]=M17,12
24 : *
```

(SIMULATION) (0. 0. 0) F20

SALES PERSON	SALARY	TOTAL SALES	SALES TARGET	COMMISSION-ABLE SALES	COMMISSION(%)	COMMISSION	MONTHLY IND. INCOME	AVE. MATE-IAL COST	PRO-RATED DI-RECT COST	COST	PROFIT
HARRIS, JUDI	2,400	10,000	6,000	4,000	8	320	2,720	5,000	800	8,520	1,480
BLOOM, ALAN	1,600	5,000	4,000	1,000	10	100	1,700	2,500	800	5,000	0
MARSHALL, TOM	1,400	5,000	4,000	1,000	10	100	1,500	2,500	800	4,300	200
SILKOFF, BILL	1,500	6,000	4,500	1,500	10	150	1,650	3,000	800	5,450	550
KISMAN, MIKE	1,800	8,000	6,000	2,000	9	180	1,980	4,000	800	6,780	1,220
JONES, BILLIE	2,100	9,000	7,000	2,000	8.5	170	2,270	4,500	800	7,570	1,430
HARRIS, SALLI	2,300	10,000	6,000	4,000	8.3	332	2,632	5,000	800	8,432	1,568
ZOLLINGER, L.	1,600	5,000	4,000	1,000	10	100	1,700	2,500	800	5,000	0
HEWITT, DENNIS	1,300	4,000	3,000	1,000	10	100	1,400	2,000	800	4,200	-200
BROWNYER, BOB	2,500	12,000	7,000	5,000	7	350	2,850	6,000	800	9,650	2,350
TOTALS	18,500	74,000	51,500	22,500	91	1,902	20,402	37,000	8,000	65,402	8,598

comment :
f15,10,10,10,15,15,11,12,13,10,10,/4

Notice that there are semicolons at the beginning of some lines of the SPECIFICATION AND FORMULAE page. These semi-colons are placed only to make the page easier to read. Any line beginning with a ";" is ignored.

Remarks about SPECIFICATIONS/FORMULAE may be entered anywhere in the page provided they are preceded by a semi-colon. For long or complex SPECIFICATION AND FORMULAE pages, it is good practice to use the semi-colons to write into the page what the SPECIFICATIONS/FORMULAE are intended to do. This is helpful when it is necessary to make modifications at a later date, particularly if those modifications are to be done by someone other than the person who originally wrote the specifications.

Note the semicolons at the end of Lines 7 and 8. This specifies that execution is to continue on to the next line. In this case, by specifying Line 7 in the SPECIFICATION in Line 2, all the calculations in Lines 7, 8 and 9 will be performed if a change is effected in any data in Column 2 of the TABLE in the MASTER BUFFER.

Execution halts at the end of a line with no semicolon.

The line following the last line in the SPECIFICATION AND FORMULAE page must have an asterisk (*) written at the left-most position.

Don't be intimidated by what at first may appear to be hopelessly complex SPECIFICATIONS AND FORMULAE. They are really quite easy to put together.

First, write down in plain language how the figures at each data positions are determined. Are they the results of calculations of other data items in the table, or are they figures which may be changed at will?

Then write the FORMULAE for calculations which would have to be carried if an item were to be changed.

After that it's just a matter of stringing the appropriate calculations together, and referencing them to the data position involved.

XIX. AUTOMATIC PROCESSING IN PIPS

PUT FUNCTION KEY

AUTOMATIC PROGRAMMING

AUTOMATIC OPERATION SETTING

AUTOMATIC OPERATION USE

G ---- 26
GF -- 247
GR -- 119
IC-N--80
IC-Y---46
IL ---- 77
IN ---282
IR ---- 44
L ------91
LF ----232
MAR --147
MAW--147
ML ---54
MT ---15
NF -- 166
O ---- 9
P ----------23
PBACK ---- 284
PF ------- 245
PROTECT---276
RF --- 56
SB ----76
SET ---89
SFN--203
SORT- -157
ST --- 170
TD --- 285
TRM --- 75
TRS ---73
UPD--195
W --- 37

PUT FUNCTION KEY [P] [F]

In previous sections of this guide, we have introduced use of the semi-colon to string together commands and specifications.

In this section we'll go into more detail about further "automating" PIPS operations.

The PF, FT and GF Commands allow storage of small instruction sets on the PPRO Diskette. These instructions are executed by pressing the function key under which they were stored.

The AU# and AS Commands (introduced later in this section) allow the execution of much longer AUTOPRO instruction sets (programs), which employ not only PIPS Commands and specifications, but also a new series of instructions which provide a great deal of flexibility in executing complex PIPS operations.

56.1 THE PF COMMAND (Put Function Key)

The PF Command is used to register a string of commands, specifications, or calculations in one of the FUNCTION KEYS, so that the operations specified may be executed at any time by simply pressing the appropriate FUNCTION KEY.

For instance, if you are creating or working with many TABLES and will be frequently justifying Column 1 to the left, by registering the following instruction string in one of the FUNCTION KEYS, the justification can be executed by just pressing that FUNCTION KEY:

```
RF;1;L
```

In a similar manner, if Column 2 is to be SORTED often, a great deal of time can be saved by registering the following string in one of the FUNCTION KEYS,

```
SORT;B;2;A;;N;N;60
```

56.2 PF COMMAND EXECUTION

56.2.1 * SELECT COMMAND = PF

56.2.2 FUNCTION KEY NO. :

Enter the number of the FUNCTION KEY in which the instruction string is to be registered.

56.2.3 FUNCTION :

Enter the instruction string to be registered.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ----------23 | RF---56 | SORT---157 | TRS---73
GF -- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST - - - 170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD - - - 285 | W - - -37
IC-N--80 | IR ----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM - - -75

PF PUT FUNCTION KEY

NOTE: UP TO 30 CHARACTERS MAY BE REGISTERED IN ONE FUNCTION KEY, INCLUDING SEMI-COLONS SEPARATING EACH SPECIFICATION.

After the last character of the string has been entered, press the SPACE BAR once, then press "RETURN". PIPS will return to the COMMAND MODE.

NOTE: A STRING WHICH DOES NOT END WITH A SPACE WILL NOT BE ACCEPTED.

56.2.4 To execute the string registered in the FUNCTION KEY, just press that key, and the instructions will be executed.

PROMPTS PF

```
* SELECT COMMAND = PF
FUNCTION KEY NO. :
FUNCTION :
* SELECT COMMAND =
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

GET FUNCTION KEY G F

57.1 THE GF COMMAND (Get Function Key)

The GF Command is another way to execute the registered contents of a specified FUNCTION KEY.

57.2 GF COMMAND EXECUTION

57.2.1 Execute.

57.2.2 Enter the number of the FUNCTION KEY whose contents are to be executed.

NOTE: AS EXPLAINED IN THE PREVIOUS SECTION ON THE PF COMMAND, THE CONTENTS OF THE FUNCTION KEY MAY BE EXECUTED SIMPLY BY PRESSING THAT FUNCTION KEY. READ ON TO SEE HOW THE GF COMMAND IS USED.

Only 30 characters may be registered in a single FUNCTION KEY. If one operation or series of operations is longer than 30 characters, the GF Command can be used to "stretch" the string over two FUNCTION KEYS.

For example, if the following operation is to be entered,

```
SORT;B,1;A;2;D/N;;N;N;60;RF;1;L;P;*
```

it will not fit into one FUNCTION KEY because it is 35 characters long. We can use two FUNCTION KEYS to hold the above string by executing the following:

```
PF;2  RETURN
SORT;B;1;A;2;D/N;;N;N;60;GF;3 (SPACE)
RETURN
PF;3  RETURN
RF;1;L;P;* (SPACE)
RETURN
```

We've broken the original string into two parts and put the first part in FUNCTION KEY 2, and the second part in FUNCTION KEY 3. We've ended the string in FUNCTION KEY 2 with "GF;3". This causes the automatic execution of the registered commands and specifications of FUNCTION KEY 3, which contains the remainder of our original operation.

PROMPTS G F

```
* SELECT COMMAND = GF
FUNCTION KEY NO. :
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF-- 247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

FT FUNCTION KEY TABLE

58.1 THE FT COMMAND (Function Key Table)

The FT Command displays the contents of the FUNCTION KEYS on the CRT.

58.2 FT COMMAND EXECUTION

58.2.1 Enter "FT" then press "RETURN".

The contents of FUNCTION KEYS 1 through 7 will be displayed. Press any key to display the contents of FUNCTION KEYS 8 through 14. Press any key to return to the COMMAND MODE.

Like the BT Command, displaying the contents of the FUNCTION KEYS does not affect the contents of the MASTER BUFFER.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

59.1 AUTOMATIC PROGRAMMING

In AUTOMATIC PROGRAMMING PIPS commands and specifications as well as a special set of instructions can be grouped together to form a program.

As one program may be as long as one PIPS PAGE, very complex programs may be written, recorded and executed.

Due to space restrictions in this guide, only the essentials of AUTO PROGRAMMING will be presented here. For a detailed introduction of programming in general and PIPS AUTO PROGRAMMING, refer to the "PIPS III AUTO PROGRAMMING GUIDE".

59.2 WRITING THE AUTO PROGRAM

The AUTO PROGRAM is written on a NON-FORMATTED PAGE in the MASTER BUFFER.

Each program must have a name. The name may be up to 6 alphanumeric characters long.

59.2.1 To begin writing an AUTO PROGRAM, execute the O Command, and enter the program name when PIPS asks, "TITLE:". Press "ESC" and then enter "ED" to "SELECT COMMAND:". Press "RETURN".

59.2.2 The cursor will locate at the left-most position of Line 2. The program may now be written from this line. All characters on a line and all lines on the PAGE may be used.

NOTE MORE THAN ONE PROGRAM MAY BE WRITTEN ON A PAGE. HOWEVER, ANY SINGLE PROGRAM MAY NOT BE LONGER THAN ONE PIPS PAGE. AFTER A PROGRAM IS WRITTEN, IT MUST BE COPIED TO A PAGE IN THE MASTER FILE.

G ---- 26	IC-Y---46	L ------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF -- 247	IL ----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR --119	IN---282	MAR--147	NF --166	PF-------245	SET---89	TD ---285	W ---37
IC-N--80	IR ----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

59.3 AUTOMATIC PROGRAM INSTRUCTION SET

The next several pages cover the instructions used in AUTOPRO.

The formats used in this section include the use of brackets ([]) and braces (<>). If one item inside a set of brackets is used, then all items inside the brackets must be used. Braces indicate optional items and are not actually used in writing instructions. Check the examples to see when brackets are used. The use of commas, parentheses, and quotation marks is important and should be as shown in the formats and examples.

"RETURN" and "LF" are used in text to represent the keys so marked.

Some formats in this manual are written on two lines because of the limitations imposed by the text width. In actual practice, any one instruction must be written on a single line. Since lines are usually 150 characters long, this should pose no problem.

59.3.1 STOP

FUNCTION: Indicates the end of a set of instructions.

EXPLANATION: The STOP instruction must always be written at the end of an instruction set. Failure to do so will result in an error in the program (at best) or loss of data and/or hangup of the computer (at worst). Be sure to always include a STOP instruction.

EXAMPLE: IF V15="Y" THEN GOTO 19;STOP

59.3.2 ESC

FUNCTION: Allows escape from a continuously executing instruction, specifically CAL/C.

EXPLANATION: In automatic mode, the ESC instruction is used to break the loop caused by use of the CAL/C instruction and to continue on with the instructions that follow.

EXAMPLE: CAL;C3=C2=CT;W;5;4;%V11;ESC;P;3;STOP

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

59.3.3 MANU

FUNCTION: Allows manual entry of instructions and/or data.

EXPLANATION: Many situations require operator intervention or manual entry of information. The MANU instruction provides a great deal of flexibility because it allows the operator to input additional instructions or required information (such as page numbers or variable data) which was not included when the instruction set was written.

The complete freedom afforded by this instruction is best understood by the operator who has had a great deal of experience with the system.

The MANU instruction can be used on a temporary basis for checking and correcting (debugging) the instructions.

When keyboard entry of instructions or data is complete, press sense key "S1" and then the "RETURN" key to continue automatic execution of the instructions.

EXAMPLE: G;3;W;5;2;MANU;P;3;L;B;STOP

59.3.4 ?

FUNCTION: Allows manual input of one additional instruction or data item.

EXPLANATION: When one or a specific number of data items is to be entered manually (such as in a request for a PAGE number), the ? instruction is used. One instruction is used for each item to be entered; if ten items must be entered, this instruction must be used ten times.

Unlike the MANU instruction, execution of instructions which follow the ? instruction continues automatically after manual entry is complete.

EXAMPLE: G;S1;SORT;B;1;?;A/N;E;N;N;60;STOP

G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT - - - 157	TRS - - - 73
GF - - 247	IL - - - - 77	LF - - - - 232	MT - - - 15	PBACK - - - - 284	SB - - - - 76	ST - - - 170	UPD - - 195
GR - - 119	IN - - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET - - - 89	TD - - - 285	W - - - 37
IC-N - - 80	IR - - - - 44	MAW - - 147	O - - - - 9	PROTECT - - - 276	SFN - - 203	TRM - - - 75	

59.3.5 DISP

FUNCTION: Outputs character strings and variables to the CRT.

FORMAT:

```
                          variable (Vn, Xn, Zn)
                          "character string"
                          LFn
DISP<[x axis,y axis]>     SPn
                          CLR
                          CLOSE
                          WAIT
```

EXPLANATION: The DISP instruction is used to control all output to the screen. In addition to displaying variables and character strings, the instruction is used to specify exactly where on the screen the display is to begin.

The instruction also includes a few special control instructions. More than one item may be included in any one DISP instruction. A comma is used to separate the items.

(1) x axis, y axis specifies the starting position of the display using the upper left corner of the screen as 1,1. The x axis is horizontal and is 80 units long; the y axis is vertical and is 24 units high.

Note that the row and column specification order is opposite that of the normal PIPS operations.

(2) "character string" is the message to be displayed and must be enclosed in either apostrophes (') or quotation marks (") and must not include RETURN.

(3) LFn causes n lines to be skipped (vertically).

(4) SPn causes n spaces to be skipped (horizontally).

(5) CLR clears the screen from the x and y coordinates specified. If the coordinates are not specified, the default values used are 1,1.

(6) CLOSE causes display of the MASTER BUFFER. The display of the MASTER BUFFER is not changed even though the table has been written to during processing.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

(7) WAIT causes the display to remain on the screen for ten seconds. Instruction processing halts during this time.

EXAMPLE: DISP [10,10] "PLEASE WAIT",WAIT,CLR

59.3.6 PRINT

FUNCTION: Outputs character strings and variables to the printer.

FORMAT:

```
                  variable (Vn, Xn, Zn)
                  "character string"
    PRINT         LFn
                  SPn
                  PF
```

EXPLANATION: The PRINT instruction is used to control all output to the printer. The instruction also includes a few special control instructions. More than one item may be included in any one PRINT instruction. A comma is used to separate the items.

(1) "character string" must be enclosed in either apostrophes (') or quotation marks (") and may not include pressing the RETURN key.

(2) LFn causes n lines to be skipped (vertically).

(3) SPn causes n spaces to be skipped (horizontally).

(4) PF causes the printer to advance the form to the top of the next page.

EXAMPLE: PRINT PF,LF5,"REPORT ON SYSTEM #",X1

59.3.7 INPUT

FUNCTION: Accepts data entered from the keyboard and outputs character strings to the screen. These character strings are usually used as prompting messages to the operator.

FORMAT: INPUT <[x axis,y axis]> <"character string"> variable <[USING control character character type]>

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ---- 9	PROTECT---276	SFN--203	TRM---75	

EXPLANATION: The INPUT instruction is used to display a message on the screen and to assign data entered from the keyboard to designated variables. Exactly where on the screen the display is to begin may be specified.

The instruction can also specify the type and/or quantity of data which will be accepted.

(1) x axis, y axis specifies the starting position of the display using the upper left corner of the screen as 1,1. The x axis is horizontal and is 80 units long; the y axis is vertical and is 24 units high. Note the the row and column specification order is opposite that of normal PIPS operations.

(2) "character string" is the message to be displayed and must be enclosed in either apostrophes (') or quotation marks (")..

(3) variable is the variable name to which the data entered on the keyboard is assigned.

(4) character type specifies the type of characters; the number of times it is written specifies the number of characters.

(a) A English and kana only (no numbers or spaces)

(b) B English, kana (Japanese language characters), and spaces only (no numbers)

(c) F numerals 0-9 and decimal point

(d) K kana only

(e) N numerals 0-9 only, no decimal point

(f) S signed (+ & -) numbers only (when combined with F or N)

(g) X anything except RETURN and LF

ACM--143 | BF ---- 105 | CA-D---58 | CF --- 55 | CT ------- 41 | DL---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F ----- 97
AU#--270 | BT---- 21 | CAL---- 97 | COL -- 87 | D ------- 97 | ED---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC------ 53 | EF---226 | FT----248

EXAMPLE: INPUT [10,5] "Enter price change " X1
USING C:SNNNNN

This example displays the message,

"ENTER PRICE CHANGE //////",

on the screen starting at Column 10 of line 5 and then waits for an input of a signed number of up to five digits. Numbers which are not preceded by a plus (+) or minus (-) sign will be rejected. Processing continues after "RETURN" is pressed or after the fifth digit is entered. The value entered is assigned to variable X1.

USING control characters specifies how control is returned to the system.

(1) C: causes return only when the specified number of characters have been entered.

(2) F: causes automatic return when the specified number of characters have been entered.

(3) K: restricts input to only kana (Japanese language) characters.

(4) (No character) causes processing to resume with the next instruction when the RETURN key is pressed.

59.3.8 LET

FUNCTION: Assigns data to variables and reads and writes data in the MASTER BUFFER.

FORMAT FOR VARIABLES:

```
                    "character string"
                    constant
    LET variable =  expression (equation)
                    variable
                    function of a variable
```

FORMAT FOR READING FROM MASTER BUFFER:

```
    LET Vn = [row number,column number]
```

FORMAT FOR WRITING TO MASTER BUFFER:

```
    LET [row number,column number] = Vn
```

G - - - - 26 | IC-Y---46 | L - - - - - - 91 | ML - - - 54 | P - - - - - - - - - - 23 | RF - - - 56 | SORT- - -157 | TRS- - -73
GF - - 247 | IL - - - - 77 | LF- - - -232 | MT - - - 15 | PBACK- - - - 284 | SB - - - -76 | ST - - - 170 | UPD--195
GR - - 119 | IN - - -282 | MAR - -147 | NF - - 166 | PF - - - - - - - 245 | SET- - -89 | TD - - - 285 | W - - - 37
IC-N- -80 | IR - - - -44 | MAW- -147 | O - - - - 9 | PROTECT- - -276 | SFN- -203 | TRM - - -75

EXPLANATION: The LET instruction may appear to be complex but is actually easy to understand. The value of the data on the right side of the equal sign (=) is assigned to the variable on the left side of the equal sign.

This is not the same as saying that the data on both sides of the equal sign are equal, as evidenced by the valid instruction,

```
LET X1 =X1 + 2
```

Constant values and character strings, variables, values of expressions (equations), functions of variables, values from specific locations of the MASTER BUFFER, and other special items of the MASTER BUFFER may be assigned to appropriate variables.

To be referenced by the LET instruction, the MASTER BUFFER must contain a formatted file .

The type of data must be the same on both sides of the equation. Assign only data of one type to a variable of the same type or by use of the conversion functions provided. These functions are explained in a section below.

The usual five logical operations may be used in numeric expressions. They are: addition (+), subtraction (-), multiplication (*), division (/), and power (^ or **).

Nested parentheses may be used as desired. A physical operation, concatenation (+), may be used with character strings.

The two types of power notations have different conditions of use. When using ^, as in Z1^Z2, Z1 must be a positive real number and Z2 must be a real number.

When using **, as in Z1**Z2, Z1 must be a real number and only the integer of Z2 is used; the value returned will only be approximate. Xn may also be used (instead of Zn).

Using the LET instruction, files are referenced indirectly by referencing the MASTER BUFFER (after using the G instruction and/or before using the P instruction with a formatted file).

When reading or writing items at specific locations, the variables used must be character strings (Vn). Row numbers may be referenced as integer constants, integer variables (Xn), or T, which stands for the Terminal row. Column numbers may only be referenced as integer constants or integer variables (Xn).

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED ---223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF ---226 | FT ----248

Special items in the MASTER BUFFER may also be read. The letter in parentheses is used in the actual equation to refer to the item. The comment (C), date (D), format (F), and title (T) of the formatted MASTER BUFFER file must be assigned to character variables (Vn).

The number of data columns (C), number of the first data line (H), and the number of the last data line (T) must be assigned to numeric variables (Xn) and can be used in expressions, e.g., LET X1 = T - H. This example assigns the total number of data lines (derived by subtracting the first data line number from the last data line number) to variable X1.

Note that the same reference letter is used for two items -- which item is determined by whether it is assigned to a character variable or a numeric variable.

An error will occur if a special item in the MASTER BUFFER is referred to which has no value (is blank). Any special items of formatted files which will be accessed by these instructions should have or should be given a value.

LOGICAL AND CONVERSION FUNCTIONS:

The LET instruction uses many logical functions as part of the equations.

FUNCTION	MEANING
ABS(X)	Absolute value of X
COS(X)	Cosine of X
EXP(X)	Value of the natural log base e raised to the X power
INT(X)	Integer of X (Made by truncating the fraction.)
LN(X)	Natural logarithm of X (to base e)
LOG(X)	Common logarithm of X (to base 10)

RND	Random number (Returns a random value between 0 and +0.999999.)
SGN(X)	Sign of X (Returns a value of +1, -1 or 0.)
SIN(X)	Sine of X
SQR(X)	Square root of X
TAN(X)	Tangent of X

For COS, SIN, and TAN, X is the angle expressed in radians. Inappropriate use of a function with a negative value will return a meaningless answer.

Because the data read and/or written to the MASTER BUFFER must be in the form of character variables, the LET instruction also uses several conversion functions to convert the character strings into numeric variables and vice versa.

EQUATION	CONVERSION
LET Vn = FSTG(Zn)	Real number to character string
LET Vn = ISTG(Xn)	Integer to character string
LET Xn = ICNV(Vn)	Character string to integer
LET Zn = FCNV(Vn)	Character string to real number

Conversion functions which convert numeric variables to character strings can be combined with other character strings or character string variables in equations.

Conversion functions which convert character strings to numerical variables can only be used alone and not with logical operators. Any calculations must be done before conversion.

EXAMPLES:

(1) Assigning constants and strings to variables:

```
LET X1=123;LET Z3=12.35;LET V2="HAPPY DAYS"
```

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

(2) Assigning variables to variables:

```
LET X1=X3;LET Z1=Z3;LETV1=V5;LET V10="END"
```

(3) Assigning values of expressions to variables:

```
LET X1=X2/X4;LET Z5=SQR(Z1);LET Z2=INT(RND*9)
```

LET V3=V3+V2 (Character strings V3 and V2 are concatenated and assigned to variable V3.)

(4) Assigning string values to numeric variables:

```
LET Z12 = FCNV(V2);LET X3 = ICNV(V5)
```

(5) Assigning numeric values to character strings:

```
LET V10 = FSTG(Z3) + " MODEL " + V3

LET V2 = "TEST " + ISTG(X2) + "82"
```

(6) Reading data from the master buffer:

```
LET V1 = [5.3];LET V2 = [T,X1]
```

(7) Writing data to the master buffer:

```
LET [5,3] = V1;LET [T,X1] = V2
```

59.3.9 REFR

FUNCTION: Refers to a conversion (lookup) TABLE in the MASTER FILE to obtain a value which is then assigned to a variable.

FORMAT: REFR #n: Vn = <Xn> (or <Vn>)

EXPLANATION: This instruction accesses a conversion table (with the particular format of one or more pairs of columns) in a master file. The left-hand columns (tags) are searched for a value equal to the expression on the right of the equal sign. If a match is found, the corresponding value in the right-hand column (tag contents) is assigned to the variable on the left of the equal sign.

(1) #n: designates the master file number

EXAMPLE: REFR #5: V1 = <X1>

The left-hand columns of MASTER FILE #5 will be searched for a value equal to X1. Where there is a match, the value in the right-hand column will be assigned to variable V1.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT--157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

59.3.10 REFW

FUNCTION: Updates an item in a conversion (lookup) TABLE in the MASTER FILE to the value of a variable. This instruction is the opposite of REFR.

FORMAT: REFW #n: <Xn> (or <Vn>) = Vn

EXPLANATION: This instruction accesses a conversion table (with the particular format of one or more pairs of columns) in a MASTER FILE. The left-hand columns (tags) are searched for a value equal to the expression on the left of the equal sign. If a match is found, the value of the variable on the right of the equal sign is assigned to the corresponding item in the right-hand column to update the item value.

The new data which updates the item must be the same width as the old data.

(1) #n: designates the MASTER FILE number

EXAMPLE: REFW #X1: <V1> = V2

The master file with a number equal to the value of X1 will be searched for a value equal to V1. Where there is a match, the item in the right-hand column will be assigned the value of variable V2.

59.3.11 GOTO

FUNCTION: Causes processing to jump to instructions on a designated line.

FORMAT:

```
          integer variable (Xn)
   GOTO   integer constant
          integer expression
```

EXPLANATION: Normally, instructions are sequentially processed in the ascending order of the line numbers. The GOTO instruction causes processing to jump to the line designated, and to continue processing from there.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

EXAMPLE:

```
3 : G;5;CAL;R5+R10=/RT;P;5;GOTO 5

4 : G;1;CAL;R5+R10=/RT;P;1;STOP

5 : G;4;CAL;C7-C6=CT;P;4;GOTO4
```

Line numbers are automatically written down the left side of the screen. When editing instructions, be sure that the line numbers referred to and their coresponding instructions are not changed after other lines are deleted or added.

59.3.12 GOSUB

FUNCTION: Causes processing to jump to a subroutine and then return.

FORMAT: GOSUB subroutine name

EXPLANATION: Subroutines are sets of instructions that are used repeatedly. Rather than write the instructions several times in the main program, they are registered as separate programs by using the instruction AS;R, just as a main routine.

GOSUB is used to cause control to jump to the named set of instructions. The last instruction of a subroutine is the word RETURN.

When the RETURN instruction is encountered, control returns to the main routine instruction following the GOSUB instruction which caused the jump to the subroutine.

A subroutine may call another subroutine, and that second subroutine may call a third. This is called "nesting." A maximum of three subroutines may be nested (three GOSUB instructions pending their corresponding RETURN instructions).

Use of a RETURN instruction without a corresponding GOSUB will cause an error.

EXAMPLE:

```
INPUT [10,5] "Enter age " Z1;GOSUB RETIRE
```


G - - - - 26	IC-Y - - - 46	L - - - - - - 91	ML - - - 54	P - - - - - - - - - - 23	RF - - - 56	SORT - - 157	TRS - - - 73
GF - - 247	IL - - - - 77	LF - - - - 232	MT - - - 15	PBACK - - - - 284	SB - - - - 76	ST - - - 170	UPD - - 195
GR - - 119	IN - - - 282	MAR - - 147	NF - - 166	PF - - - - - - - 245	SET - - - 89	TD - - - 285	W - - - 37
IC-N - - 80	IR - - - - 44	MAW - - 147	O - - - - 9	PROTECT - - - 276	SFN - - 203	TRM - - - 75	

59.3.13 FOR..TO...NEXT

FUNCTION: Causes the same operation to be repeated successively, usually while using some changed value in the process.

FORMAT:

FOR Xn = initial value,

TO final value repeated operation(s) (which may involve the use of Xn),

NEXT

EXPLANATION: The FOR...TO...NEXT instruction is used to specify the number of times that a specific process is to occur. Before processing begins, Xn is set to the initial value specified. At the end of each cycle, at the NEXT statement, the value of Xn is incremented by one.

When Xn exceeds the final value specified, the repetition process ends and processing continues with ("falls through to") the instructions following the NEXT statement.

The FOR..TO...NEXT instruction may be nested up to nine times or up to six times if three GOSUB instructions are also nested. The total number of nests of both types of instructions is nine.

The initial value may be an integer or integer variable. The final value may be an integer, integer variable, or integer expression.

EXAMPLE:

(The indentation in the example is for ease of reading.)

```
FOR X1 = 1 TO 52
        FOR X2 = 1 TO 7
                FOR X3 = 1 TO 24
                GOSUB PAYME
                NEXT
        NEXT
NEXT
```

Loop 1 will be processed 24 times every time loop 2 is processed. Loop 2 will be processed 7 times every time loop 3 is processed. Loop 3 will be processed 52 times. Thus loop 1 will be processed a total of 8736 times (24*7*52).

ACM--143 | BF---- 105 | CA-D---58 | CF--- 55 | CT-------- 41 | DL---- 49 | END--- 4
AS---267 | BS---- 74 | CA-U--214 | CM--275 | CTRL ----237 | DRL--- 64 | F------ 97
AU*--270 | BT---- 21 | CAL---- 97 | COL--87 | D -------- 97 | ED---223 | FO---110
B---- 33 | CA-A--209 | CC------42 | CS---185 | DC------ 53 | EF---226 | FT----248

59.3.14 IF

FUNCTION: Tests a condition (argument) to see if it is true; and if true, causes some specified operation to occur.

FORMAT: IF argument THEN statement 1 ⟨[ELSE statement 2]⟩

EXPLANATION: The IF instruction causes a specified operation to occur if a certain condition (argument) is found to be true. Generally, the argument consists of some sort of comparison between two items.

The left side of the comparison operator may be either a numeric or character variable; the right side may be a numeric variable, numeric expression, constant, character string, or character variable.

The comparison operators are: equal to (=), not equal to (<>), greater than (>), less than (<), greater than or equal to (>=), or less than or equal to (<=).

Statement 1 and Statement 2 can be any instruction other than IF..THEN or FOR..TO...NEXT.

Character strings may be only partially defined by using the asterisk to represent any characters. The argument IF V1="*E*" THEN... is true if V1 contains an E.

EXAMPLES:

```
IF X1 >= 32000 THEN END ELSE GOSUB HOURS
IF V9 <> "Y" THEN LET X3 = X3+1;DISP X3
```

The DISP instruction will be executed even if V9 does equal Y; other instructions on the same line are not affected by the IF..THEN instruction. For clarity it is best to put these instructions on a separate line.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST----170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD----285	W----37
IC-N--80	IR----44	MAW--147	O ----9	PROTECT---276	SFN--203	TRM---75	

59.3.15 %

FUNCTION: Allows use of manual instructions with AUTOPRO variables.

FORMAT:

```
%integer variable (Xn)
%(integer expression)
%character variable (Vn)
```

EXPLANATION: All of the manual instructions used in PIPS can be used in AUTOPRO. To be used with variables, the percent sign is placed in front of the variable to represent the variable value. The percent sign is not used with the automatic instructions.

EXAMPLES:
```
FOR X1=1 TO 10;G;%X1;CT;?;P;%X1;NEXT;STOP
LET X2=5;LET X3=14;G;3;CAL;R%X2+R%X3=/RT;STOP
```

59.3.16 @

FUNCTION: Returns one of a series of data values in a specially constructed data file.

EXPLANATION: The @ symbol may be used in instructions to retrieve data items from a data file (also called a variable file). This file is registered in the same way as an AUTOPRO file, but cannot be on the same page with the instructions which call it.

EXAMPLE:

```
FOR X1=3 TO 5;G;%X1;MAW;Y;5;1;@;P;%X1;NEXT;STOP
```

59.4 VARIABLES

AUTOPRO uses three kinds of variables:

(1) character string (Vn),

(2) integer (Xn), and

(3) real numbers (Zn).

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

The value of n ranges from 1 to 20. There are some other values of Xn which are used for error messages and other special items and are covered in the operation section of this manual.

Character string variables (Vn) represent data consisting of numbers, letters, and symbols. Any one variable may represent data up to 75 characters long.

Real number variables (Zn) represent both fixed and floating point numeric data in the range of 10**-63 to 10**63 to a maximum of 16 digits.

Integer variables (Xn) are used for signed integer values in the range of -32767 to +32767. These variables are used to represent file, column, and row numbers, in FOR..TO...NEXT instructions, etc.

ERROR CODES AND MEANINGS

The following errors cause a complete stop in an Auto Program's execution:

ERROR CODE	MEANING
108	JUMPING AROUND A 'FOR' STATEMENT.
100	Incorrect program name
101	Page reading error
102	REFR/REFW page error
103	REFR/REFW data error
104	Conversion table format error
105	Incorrect page writing error
107	Illegal use of GOTO statement
112	No THEN following IF statement
113	Illegal IF..THEN..ELSE statement
114	Incorrect use of FOR..NEXT
115	Irrational use of FOR..NEXT
117	Overflow/underflow error in GOSUB use
118	Overflow/underflow error in FOR..NEXT use
120-126	Syntax error in operation expression
130	Error in final statement of program
131	Error in DISP, PRINT commands
132	Error in INPUT command
133	Irrational control variable in FOR..NEXT statement
134	Variable expression execution time error.
200	Input exceeds 75 characters

The following errors do not cause a complete stop in program execution. These are errors which can be checked by and returned to the programmer during programming (1-99).

G----26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

1	Underflow in decimal floating point operation
2	Overflow in decimal floating point operation
3	Page or zero for LOG operation
4	Division by zero
5	Square root of negative number
6	Overflow/underflow in integer operation
7	Overflow of TAN ( )
8	Overflow in binary floating conversion
10	Error during conversion from character string to floating point decimal
20	Matrix read/write error or non formatted page
21	Title specified by REFR/REFW cannot be found.

For error codes up to 100, you can proceed to the next statement of the program by setting the error code to the special variable X21. Then, in order to correct the error, reset X21 to 0 and then correct the error that occurred in the program

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F----- 97
AU#--270 | BT---- 21 | CAL---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO ---110
B---- 33 | CA-A -- 209 | CC----- 42 | CS---185 | DC------ 53 | EF---226 | FT----248

AUTOMATIC OPERATION SETTING

A S

60.1 THE AS COMMAND (Automatic Operations Setting)

Before an AUTO PROGRAM can be executed, it must be registered in the AUTO PROGRAM CATALOG. Up to 32 programs, regardless of their length, may be registered in the AUTO PROGRAM CATALOG at one time.

The AS Command allows registration of AUTO PROGRAMS in the AUTO PROGRAM CATALOG, deletion of program registration, and display of the AUTO PROGRAM CATALOG.

60.2 REGISTERING AN AUTO PROGRAM

60.2.1 To the "*SELECT COMMAND =" prompt enter "AS;R" and press "RETURN".

PAGE NO. (Max MASTER 31)

60.2.2 Only programs on PAGES in the MASTER FILE may be registered. Enter the number of the PAGE containing the PROGRAM(S) to be registered and press "RETURN". PIPS will return to the COMMAND MODE.

60.3 DELETING REGISTERED PROGRAMS

60.3.1 After entering "AS" and pressing "RETURN", PIPS will ask:

REGISTER, DELETE OR CATALOGUE (R,D,C) :

60.3.2 Enter "D" and press "RETURN". The next prompt will be:

TITLE NAME ? :

60.3.3 Enter the name of the program to be deleted from the AUTO PROGRAM CATALOG. Press "RETURN". The name of the program entered will be deleted and PIPS will again ask:

TITLE NAME ? :

Another title can be deleted, if necessary. Press "ESC" to return to the COMMAND MODE.

NOTE: "AS:D" DELETES ONLY THE PROGRAM NAME FROM THE CATALOG. THE PROGRAM ITSELF REMAINS IN THE FILE AND CAN BE EXECUTED AGAIN IF IT IS RE-REGISTERED.

60.3.4 If all program names are to be deleted, enter "<>" to the "TITLE NAME ? :" prompt and press "RETURN". All names will be deleted and PIPS will return to the COMMAND MODE.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT--157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

AS AUTOMATIC OPERATION SETTING

60.4 DISPLAYING THE AUTO PROGRAM CATALOG

60.4.1 Enter "AS" and press "RETURN". To the next prompt, enter "C" and press "RETURN".

The names of programs registered in the AUTO PROGRAM CATALOG will be displayed. If there are more names than can be displayed at one time, press any key on the keyboard to continue display. At the end of the list, press any key to return to the COMMAND MODE.

60.5 ADDING PROGRAMS TO A PAGE

As long as the program name is registered in the catalog, the program may be on any PAGE in the MASTER FILE.

From a practical standpoint, however, we recommend confining the programs to one or two PAGES in the MASTER FILE.

There are two ways to add a program to a PAGE.

60.5.1 The first method is to get the PAGE containing the programs already written into the MASTER BUFFER. With the ED Command, simply begin writing the new program on the line after the last line of the last program on the PAGE (marked by an asterisk).

The first line of the new program is its name enclosed by "<>". Subsequent lines contain the program itself. The last instruction in the program must be STOP, and if the program is the last one on the PAGE the next line must have an asterisk in the left-most position.

60.5.2 The second way to add a program to a PAGE already containing one or more programs is to write first the new program on a NON-FORMATTED PAGE in the MASTER BUFFER by executing the O Command, then entering the title (name) and pressing "ESC". Then the program can be written in the ED mode.

60.5.3 After the program is finished, put it in the SUB BUFFER:

```
TRS;N
```

60.5.4 Next get the PAGE which contains the program(s) to which you want to append the new program. Append the SUB BUFFER to the MASTER BUFFER:

```
TRM;Y
```

Whichever method is used, the new program name must be registered in the CATALOG.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

60.5.5 With the PAGE containing the old program(s) and the new one(s) in the MASTER BUFFER, execute the following:

```
AS;R;(Page number of the original page)
RETURN
RETURN
```

60.6 EDITING AUTO PROGRAMS

60.6.1 To edit an AUTO PROGRAM, get the PAGE containing the program to be edited into the MASTER BUFFER.

60.6.2 In the ED MODE, make whatever modifications are necessary. If the beginning line(s) of the program(s) on the PAGE has not changed, put the edited PAGE back into its original place in the MASTER FILE.

60.6.3 If the edit changed the beginning line of any program(s), this program must be re-registered in the CATALOG.

60.6.4 To re-register a program, first delete it from the CATALOG. Then register it again as if it were a new program.

PROMPTS [A] [S]

```
* SELECT COMMAND = AS
REGISTER, DELETE OR CATALOGUE (R,D,C) : R
PAGE NO. (MAX. MASTER = 31):

* SELECT COMMAND = AS
REGISTER, DELETE OR CATALOGUE (R,D,C) : D
TITLE NAME :

* SELECT COMMAND = AS
REGISTER DELETE OR CATALOGUE (R,D,C) : C
* SELECT COMMAND =
```

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT- --157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST--- 170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

A U # AUTOMATIC OPERATION USE

61.1 THE AU# COMMAND

The AU# Command initiates execution of an AUTO PROGRAM whose name is registered in the AUTO PROGRAM CATALOG.

61.2 AU# COMMAND EXECUTION

61.2.1 To execute an AUTO PROGRAM, enter AU#, followed by the program name (no space), and press "RETURN".

61.2.2 During program execution, the red light on the "S1" key located at the upper left of the keyboard will light.

(1) To temporarily halt execution of the program, press the "S1" key once. The red light will go out and execution will be suspended.

(2) To continue with execution, press the "S1" key once again. The red light will go on. Press "RETURN". Program execution will continue.

(3) To halt execution of the program and return to the COMMAND MODE, press "S1" once. Then press "RESET" (next to "S1" on the keyboard) while holding down "CTRL". PIPS will return to the COMMAND MODE.

61.2.3 For a hard (printed) copy listing all commands and specifications being executed in the AUTO PROGRAM, press the "S2" key prior to execution of the program.

This will light the red light on the "S2" key, and all commands and specifications being processed in the AUTO PROGRAM will be printed out on the printer.

The commands and specifications are printed one per line so this can consume a great deal of paper in a long program. It is, however, a useful debugging tool.

61.2.4 Here is an example of a simple AUTO PROGRAM.

The program graphs Columns 2, 3 and 4 of the TABLE on the PAGE specified by the operator. It then combines the graphs and the data used to create the graphs in one TABLE.

ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL ---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL --- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D -------- 97 | ED --- 223 | FO --- 110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF --- 226 | FT ---- 248

AUTOMATIC OPERATION USE A U

The first program listing includes comments on what each line of the program is doing. The second listing is exactly the same in content, but everything has been run together to save space.

The programs are on pages 29 and 30 of your demonstration diskette. To execute the program, register it with the AS Command. Then enter AU#DEMO2 and press RETURN.

You will be asked to enter the number of the page to be graphed. There is a sample table for this purpose on page 28. Enter 28 and press return.

The program will then ask you to specify a page to be used for a scratch pad. Specify any page which does not contain data and press return.

The rest of the execution is automatic.

This program uses very few of the special instructions available to the PIPS user, and is intended only to illustrate what an AUTO PROGRAM looks like.

2 8 RETURN

```
1  : <PROJECT ANALYSIS>
2  :
3  : PROJECT              FEE        COST       PROFIT
4  :
5  : ALPHA              8,000      2,000      6,000
6  : BRAVO              6,000      4,000      2,000
7  : CHARLIE            9,000      1,000      8,000
8  : DELTA              9,500      5,000      4,500
9  : ECHO               5,000      2,000      3,000
10 : FOXTROT            7,500      1,000      6,500
11 : GOLF               4,000      4,000          0
12 : HOTEL              8,500      3,000      5,500
13 :
14 : comment :
15 : f15,10,10,10,/4
```

```
1  : <DEMO1>                                          ( 0, 0, 0) N41    PAGE  29
2  : DISP CLR
3  : DISP [20,4] "*********************************************"
4  : DISP [20,5] "DEMO PROGRAM TO GRAPH DATA IN A TABLE AND THEN"
5  : DISP [20,6] "COMBINE THE DATA AND  GRAPHS  IN ONE TABLE AND"
6  : DISP [20,7] "PRINT OUT A HARD COPY"
7  : DISP [20,8] "*********************************************"
8  :
9  : INPUT [10,15] "ENTER NUMBER OF PAGE CONTAINING DATA TO BE GRAPHED     " X1
10 : INPUT [10,17] "ENTER NUMBER OF PAGE TO BE USED AS SCRATCH PAD        " X2
11 :
12 : G:X1:                              GET THE PAGEINPUT AS "X1" INTO THE MASTER BUFFER
13 : GR:1:2:Y:*::20000::N:              MAKE BAR GRAPH OF COLUMN 2 ON THE TABLE
14 : GOSUB SDEMO1:                      TRANSFER EXECUTION TO SUBROUTINE
15 : CA:D:XX1:3:-1:-2:2:N:              COMBINE BAR PORTION OF GRAPH WITH FIRST 2 COLUMNS OF ORIGINAL TABLE
16 : P:XX2:                             FILE PARTIALLY COMPLETED TABLE ON SCRATCH PAD PAGE
17 :
18 : G:X1:                              GET THE PAGE INPUT AS "X1" INTO THE MASTER BUFFER
19 : GR:1:3:Y:*::20000::N:              MAKE BAR GRAPH OF COLUMN 3 ON THE TABLE
20 : GOSUB SDEMO1:                      TRANSFER EXECUTION TO SUBROUTINE
21 : CA:D:XX1:2:-3:2:N:                 COMBINE THE BAR PORTION OF THE GRAPH WITH COLUMN 3 OF THE ORIGINAL TABLE
22 : CA:D:XX2:5:-1:-2:-3:1:2:N:         COMBINE THESE TWO COLUMNS WITH THE TABLE ON SCRATCH PAD PAGE
23 : P:XX2:                             FILE PARTIALLY COMPLETED TABLE ON SCRATCH PAD PAGE
24 :
25 : G:X1:                              GET THE PAGE INPUT AS "X1" INTO THE MASTER BUFFER
26 : GR:1:4:Y:*::20000::N:              MAKE BAR GRAPH OF COLUMN 3 ON THE TABLE
27 : GOSUB SDEMO1:                      TRANSFER EXECUTION TO SUBROUTINE
28 : CA:D:XX1:2:-4:2:N:                 COMBINE THE BAR PORTION OF THE GRAPH WITH COLUMN 4 OF THE ORIGINAL TABLE
29 : CA:D:XX2:7:-1:-2:-3:-4:-5:1:2:N:   COMBING THESE TWO COLUMNS WITH TABLE ON SCRATCH PAD PAGE
30 :
31 : SET:PRT=/16:                       CONDENSED HARD COPY
32 :
33 : L:B:                               HARD COPY OF MASTER BUFFER
34 :
35 : STOP:                              FINISH PROGRAM EXECUTION
36 : <SDEMO1>
37 : SB:                                PUT THE GRAPH INTO THE MASTER BUFFER
38 : NF:N:11,34,/4:                     MAKE THE GRAPH INTO A FORMATTED PAGE
39 : DL:2:2:Y:IR:2:ESC:                 ERASE UNWANTED LINE FROM THE TABLE
40 : RETURN:                            EXECUTION RETURNS TO MAIN PROGRAM
41 : *                                  "*" INDICATES THAT THERE ARE NO MORE PROGRAMS ON THE PAGE
```


G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

```
1  : <DEMO2>                                        ( 0. 0. 0) N14    PAGE  30
2  : DISP CLR
3  : DISP [20,4] "*********************************************"
4  : DISP [20,5] "DEMO PROGRAM TO GRAPH DATA IN A TABLE AND THEN"
5  : DISP [20,6] "COMBINE THE DATA AND  GRAPHS  IN ONE TABLE AND"
6  : DISP [20,7] "PRINT OUT A HARD COPY"
7  : DISP [20,8] "*********************************************"
8  : INPUT [10,15] "ENTER NUMBER OF PAGE CONTAINING DATA TO BE GRAPHED     " X1
9  : INPUT [10,17] "ENTER NUMBER OF PAGE TO BE USED AS SCRATCH PAD         " X2
10 : G!XX1!GR!1!2!Y!*!!20000!!N!GOSUB SDEMO2!CA!D!XX1!3!-1!-2!2!N!P!XX2!G!XX1!GR!1!3!Y!*!!20000!!N!GOSUB SDEMO2!CA!D!XX1!2!-3!2!N!CA!D!XX2!5!-1!-2!-3!1!2!N
11 : P!XX2!G!XX1!GR!1!4!Y!*!!20000!!N!GOSUB SDEMO2!CA!D!XX1!2!-4!2!N!CA!D!XX2!7!-1!-2!-3!-4!-5!1!2!N!SET!PRT*/16!L!B!STOP!
12 : <SDEMO2>
13 : SB!NF!N!11,34,/4!DL!2!2!Y!IR!2!ESC!RETURN!
14 : *
```

```
1  : <PROJECT ANALYSIS>
2  :
3  : PROJECT                 FEE        COST      PROFIT
4  :
5  : ALPHA                 8,000       2,000       6,000
6  : BRAVO                 6,000       4,000       2,000
7  : CHARLIE               9,000       1,000       8,000
8  : DELTA                 9,500       5,000       4,500
9  : ECHO                  5,000       2,000       3,000
10 : FOXTROT               7,500       1,000       6,500
11 : GOLF                  4,000       4,000           0
12 : HOTEL                 8,500       3,000       5,500
13 :
14 : comment :
15 : f15,10,10,10,/4
```

<PROJECT ANALYSIS> (0. 0. 0) F15

PROJECT	FEE	COST	PROFIT
ALPHA	8,000	2,000	6,000
BRAVO	6,000	4,000	2,000
CHARLIE	9,000	1,000	8,000
DELTA	9,500	5,000	4,500
ECHO	5,000	2,000	3,000
FOXTROT	7,500	1,000	6,500
GOLF	4,000	4,000	0
HOTEL	8,500	3,000	5,500

0 5000 10000 0 5000 10000 0 5000 10000

```
comment :
f15,10,34,10,34,10,34,/4
```


ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

XX. DISKETTE-RELATED COMMANDS

CHANGE MEDIA

PROTECT

INITIALIZE DISKETTE

BACKUP

TRANSFER DATA

G ---- 26
GF -- 247
GR -- 119
IC-N- -80
IC-Y---46
IL ----77
IN ---282
IR ----44
L ------91
LF----232
MAR--147
MAW--147
ML ---54
MT ---15
NF --166
O ---- 9
P ----------23
PBACK----284
PF -------- 245
PROTECT---276
RF ---56
SB ----76
SET---89
SFN--203
SORT---157
ST ---170
TD ---285
TRM ---75
TRS---73
UPD--195
W ---37

NOTES

- To move pages between floppy & hard disk (M23 Type)

```
SELECT   COMMAND = END

READY

PDFER3 Δ F0:n,n Δ J0:m
       J0:200,207ΔF0:200
                     1
```

where n,n = start page no, finish page no.
m = start page no.

- Reverse this for back up from hard disk to floppy.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU*--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

CHANGE MEDIA C M

62.1 THE CM COMMAND (Change Media)

The CM Command allows you to change the PDATA Diskette located in Drive #1 of the DISK DRIVE UNIT.

This allows several people to use the same system, and to maintain their own data diskettes with TABLES, charts, automatic programs, etc.

CAUTION: FAILURE TO FOLLOW THE PROCEDURE OUTLINED BELOW COULD CAUSE PERMANENT DAMAGE TO THE PDATA DISKETTE AND THE DATA RECORDED ON IT. ANY DEVIATION FROM THE PROCEDURE COULD RENDER ALL THE DATA ON THE DISKETTE INACCESSIBLE.

62.2 CM COMMAND EXECUTION

62.2.1 * SELECT COMMAND = CM

62.2.2 CHANGE MEDIA & STRIKE ANY KEY !

Before removing the PDATA Diskette from Drive #1, be certain that the red indicator lights on both diskette drives are OFF, then carefully extract the diskette from Drive #1.

62.2.3 Insert the new PDATA diskette into Drive #1 and close the door. Press and key.

You are now ready to resume PIPS operations with the new PDATA Diskette.

PROMPTS C M

```
* SELECT COMMAND = CM
CHANGE MEDIA & STRIKE RETURN KEY :
* SELECT COMMAND =
```


G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

PROTECT

63.1 THE PROTECT COMMAND

The PROTECT Command is used to set a keyword for an entire diskette or individual keywords for PAGES in the FILE. Once keywords have been set, you cannot call or copy a PAGE from the MASTER FILE on the diskette unless you input the keyword for the PAGE of the diskette.

There are three types of keywords:

(1) PAGE KEYWORDS are set for individual PAGES.

(2) VOLUME KEYWORDS are set to protect entire diskettes.

(3) SPECIAL KEYWORDS allow you examine other keywords in the TITLE BUFFER.

CAUTION: SHOULD YOU FORGET THE KEYWORD SET FOR A PARTICULAR PAGE OR DISKETTE, YOU WILL NOT BE ABLE TO ACCESS THE PAGE OR DISKETTE.

63.2 SETTING PAGE KEYWORDS

63.2.1

* SELECT COMMAND = PROTECT
PAGE, VOLUME OR SPECIAL KEY WORD ? (P,V,S) : P

A "P" entry specifies that a keyword is to be input for individual PAGES.

63.2.2

ON EACH PAGE OR KEY WORD ? (P,K) : 7

A "P" specification tells PIPS we want to set by the PAGE, rather than by "K" (keywords). The "K" specification will be explained in 63.5.4.

63.2.3

PAGE NUMBER(S) ((WITH(,),B,C) :

To this prompt, a single PAGE or block of PAGES can be specified for protection with a keyword.

Specify a single PAGE by entering the PAGE number. A block of PAGES may be specified by entering the beginning and ending PAGES, separated by a comma.

A "C" entry specifies PAGES previously designated with the SFN Command.

NOTE: THE "B" SPECIFICATION CANNOT BE ENTERED HERE IN RESPONSE TO THIS PROMPT.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

63.2.4 NEW KEY WORD :

The specification made in response to this prompt sets a keyword for the PAGE specified or the first PAGE of the block specification made in 63.2.2. . Any combination of letters and numbers may be specified, but the keyword is limited to 6 characters, numbers or combination thereof.

NOTE: "INPUT KEY WORD" WILL PRECEDE THE "NEW KEY WORD" PROMPT IF THE SPECIFIED PAGES ARE ALREADY PROTECTED WITH A KEYWORD. YOU MUST THEN ENTER THE KEYWORD CURRENTLY IN EFFECT BEFORE PIPS WILL LET YOU SPECIFY A NEW KEYWORD.

When a block of PAGES is to be protected with a keyword, PIPS will ask you to input the keyword for every PAGE in the block.

MASTER FILE NO. (Page Number)
NEW KEY WORD:

This prompt will repeat as many times as the number of PAGES specified.

63.2.5 TRY AGAIN ? (Y,N) :

When the keyword has been entered for all PAGES, enter "Y" to revise the specifications just entered or to continue with new specifications on other PAGES. A "Y" entry will return to the "ON PAGE OR KEYWORD" prompt.

Enter "N" to return to the COMMAND MODE.

63.2.6 When a PAGE protected with a keyword is called with the G Command, this prompt will appear,

MASTER FILE NO. ... IS PROTECTED !
INPUT KEY WORD :

PIPS will get the PAGE only after you enter the correct keyword and press "RETURN".

63.3 SETTING VOLUME KEYWORDS

63.3.1 Enter "PROTECT" and press "RETURN".

63.3.2 PAGE, VOLUME OR SPECIAL KEY WORD ? (P,V,S) : V

A "V" entry specifies that a keyword is to be set to protect the entire diskette.

G---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF--- 56 | SORT---157 | TRS---73
GF-- 247 | IL ----77 | LF----232 | MT---15 | PBACK---- 284 | SB----76 | ST--- 170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

63.3.3 NEW KEY WORD :

Enter the keyword for the diskette. Any combination of letters or numbers (6 characters or less) may be specified.

NOTE: THE "INPUT KEY WORD" PROMPT WILL PRECEDE THE "NEW KEY WORD" PROMPT WHEN THE DISKETTE IS ALREADY PROTECTED WITH A KEY WORD. YOU MUST INPUT THE KEYWORD PRESENTLY IN EFFECT BEFORE PIPS WILL ALLOW YOU TO GO ON AND INPUT A NEW KEYWORD.

63.3.4 The diskette is now protected with the new VOLUME KEYWORD.Press "ESC" to return to the COMMAND MODE.

63.3.5 The next time you start up the system, before "SELECT COMMAND" is displayed you must input the VOLUME KEYWORD:

THIS DATA MEDIA IS PROTECTED!
INPUT KEY WORD :

After you enter the correct VOLUME KEY WORD, PIPS will allow you to access information on the PDATA DISKETTE.

63.4 SETTING SPECIAL KEYWORDS

A SPECIAL KEYWORD is used to examine the keywords set for each PAGE on a diskette. If a SPECIAL KEYWORD is not set before setting PAGE KEYWORDS, these keywords cannot be examined later.

63.4.1 Enter "PROTECT", press "RETURN", then enter "S" to the first prompt.

63.4.2 PAGE, VOLUME OR SPECIAL KEY WORD ? (P,V,S) : S

63.4.3 NEW KEY WORD :

To this prompt enter the SPECIAL KEYWORD.

The "PAGE VOLUME OR SPECIAL KEY WORD ?" prompt will appear once again. Press "ESC" to return to the COMMAND MODE.

NOTE: IF A SPECIAL KEYWORD IS CURRENTLY IN EFFECT, "INPUT KEY WORD" WILL BE DISPLAYED BEFORE THE "NEW KEY WORD" PROMPT. YOU MUST ENTER THE PRESENT SPECIAL KEY WORD BEFORE PIPS WILL ALLOW YOU TO GO AHEAD AND ENTER A NEW KEYWORD.

ACM--143	BF----105	CA-D---58	CF---55	CT--------41	DL----49	END---4
AS---267	BS----74	CA-U--214	CM--275	CTRL----237	DRL---64	F-----97
AU#--270	BT----21	CAL----97	COL--87	D--------97	ED---223	FO---110
B----33	CA-A--209	CC-----42	CS---185	DC-------53	EF---226	FT----248

63.4.4 To display keywords specified for PAGES, enter "BT" (Display Title Buffer).

```
* SELECT COMMAND = BT

FROM PAGE NO. : ........
```

To this prompt, enter the SPECIAL KEYWORD.

The title of every PAGE in the MASTER FILE which contains data will be displayed. Keywords set for each PAGE will appear in the right-most position of the title information display, preceded by a "#".

"SPECIAL KEY WORD:" followed by the specified keyword, will be displayed at the top of the title file.

If you execute "BT" without inputting the special keyword, "#*" will appear on the appropriate lines to indicate that a keyword has been set for certain PAGES. However, the keyword will not be displayed.

NOTE: IT IS EXTREMELY IMPORTANT THAT YOU TAKE MEASURES NOT TO FORGET KEYWORDS. KEYWORDS ARE USEFUL FOR PROTECTING DATA AGAINST ACCIDENTAL ERASURE OR UNAUTHORIZED ACCESS. HOWEVER, IF YOU FORGET A KEYWORD, YOU WILL NOT BE ABLE TO ACCESS DATA ON PROTECTED PAGES OR DISKETTES.

63.5 MODIFYING & CANCELLING KEYWORDS

With the basic procedures just described for setting PAGE, VOLUME, and SPECIAL KEYWORDS, keywords can be changed or cancelled.

63.5.1 PAGE KEYWORDS

(1) To change a PAGE KEYWORD, enter the old key word to the "INPUT KEY WORD" prompt, then enter the new keyword to the "NEW KEY WORD" prompt.

(2) To cancel the old keyword without specifying a new one to replace it, enter the old keyword to the "INPUT KEY WORD" prompt. When the "NEW KEY WORD" prompt is displayed, press "RETURN" without making an entry.

63.5.2 VOLUME KEYWORDS

(1) To change the VOLUME KEYWORD, first specify the old keyword, then enter the new keyword to the "NEW KEY WORD" prompt.

(2) To cancel, enter the old keyword, then press "RETURN" without making an entry.

G---- 26	IC-Y---46	L------91	ML---54	P----------23	RF---56	SORT---157	TRS---73
GF--247	IL----77	LF----232	MT---15	PBACK----284	SB----76	ST---170	UPD--195
GR--119	IN---282	MAR--147	NF--166	PF-------245	SET---89	TD---285	W---37
IC-N--80	IR----44	MAW--147	O----9	PROTECT---276	SFN--203	TRM---75	

63.5.3 SPECIAL KEYWORDS

(1) To change, enter the old keyword then the new keyword.

(2) To cancel, enter the old keyword then press "RETURN" without making an entry to the "NEW KEY WORD" prompt.

63.5.4 IDENTICAL PAGE KEYWORDS: THE "K" SPECIFICATION

When a keyword has been set to protect several PAGES, it can be changed or deleted by entering "K" to the "ON EACH PAGE OR KEYWORD?" prompt.

To replace the old keyword with a new one, enter the new keyword. To cancel the old keyword, press "RETURN" without making an entry.

Once "RETURN" is pressed, the keywords will be changed or cancelled throughout the FILE. It is not necessary to change or cancel keywords for PAGES individually when the same keyword has been set for several PAGES in the FILE.

63.6 KEYWORD DEFAULT

The protective function of keywords can be temporarily suspended with the SET Command. This is called placing the keyword in default. This eliminates the necessity of having to input the keyword every time you want to access data on a PAGE. However, after the system is shut down, the protective function of the keywords will once again be in effect.

63.6.1 While in the COMMAND MODE, enter "SET".

63.6.2 Enter "DKW=", followed by the keyword to be placed in default.

Once a keyword has been placed in default, data on protected PAGES can be accessed without entering the keyword.

63.6.3 To restore the protective function of all keywords in default, enter "SET" then "DKW=1" to the "SET:" prompt.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU✱--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

PROTECT

PROMPTS PROTECT

```
 PAGE KEYWORD

  * SELECT COMMAND = PROTECT
  PAGE, VOLUME OR SPECIAL KEY WORD ?(P,V,S) :  P
  ON PAGE OR KEY WORD (P,K) : P
  PAGE NUMBER(S) ((WITH(,)),B,C):
*INPUT KEY WORD:
  NEW KEY WORD:
  TRY AGAIN ? (Y,N) : N
  * SELECT COMMAND =

 VOLUME KEYWORD

  * SELECT COMMAND = PROTECT
  PAGE, VOLUME OR SPECIAL KEY WORD? (P,V,S):V
*INPUT KEY WORD:
  NEW KEY WORD:
  PAGE VOLUME OR SPECIAL KEY WORD? (P,V,S) : ESC
  * SELECT COMMAND =


 SPECIAL KEYWORD


  * SELECT COMMAND = PROTECT
  PAGE, VOLUME OR SPECIAL KEYWORD ? (P,V,S) : S
*INPUT KEYWORD:
  NEW KEY WORD:
  PAGE, VOLUME OR SPECIAL KEY WORD?(P,V,S): ESC
  * SELECT COMMAND =

*This prompt will appear when previously specified keyword
  is still in effect.
```


G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O----9 | PROTECT---276 | SFN--203 | TRM---75

I N INITIALIZE DISKETTE

64.1 THE IN COMMAND (Initialize Diskette)

The IN Command accomplishes two things. It erases any data which may be on the diskette and also allows you to set the PAGE size for all the PAGES on the diskette.

You may set the size of the PAGE anywhere within these limits:

(1) WIDTH: 76 to 150 characters wide
(2) LENGTH: 20 to 60 lines long

Naturally, setting less than the maximum size (150 X 60) will increase the number of PAGES which can be contained on the diskette.

NUMBER OF PAGES AT MAXIMUM SIZE:

MARK I : 27
MARK III : 31
MARK V : 96

64.2 IN COMMAND EXECUTION

CAUTION: WHENEVER THIS COMMAND IS EXECUTED, ALL DATA ON THE DISKETTE IS ERASED.

64.2.1 * SELECT COMMAND = IN

64.2.2 CHARACTER NUMBER = (75---150) :

The specification entered here determines the PAGE width for all PAGES on the diskette.

64.2.3 LINE NUMBER (20---60) :

Enter the number of lines each PAGE is to have.

64.2.4 PAGE NUMBER (1---31) :

Enter the number of PAGES to be on the diskette.

64.2.5 THIS COMMAND ERASES ALL THE CONTENTS OF THE DATA MEDIA!!!

This message will be displayed in reverse field across the top of the CRT, and below this:

INPUT KEY WORD :

If the diskette is protected, the proper keyword must be entered. If the correct keyword is not entered, PIPS will return to the COMMAND MODE.

NOTE: ALL PDATA DISKETTES FOR THE PIPS III SYSTEM ARE PROTECTED WITH THE KEYWORD "*".

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AÜ#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC-------53 | EF---226 | FT----248

64.2.6 Enter "*" and press "RETURN".

PIPS will begin to intitialize the diskette. Various messages will appear on the screen, indicating the stage of the initializing process. Initializing will take about 3 minutes to complete. When finished, PIPS will display:

INITIALIZE COMPLETED. STRIKE RETURN KEY!

64.2.7 Press "RETURN". PIPS will return to the screen displayed prior to execution of the IN Command. Continue with PIPS operations.

PROMPTS I N

```
* SELECT COMMAND = IN
CHARACTER NUMBER (75---,150)   76
LINE NUMBER (20---,60) :
PAGE NUMBER (---,55) : 55
THIS COMMAND ERASES ALL THE CONTENTS OF THE DATA MEDIA
INPUT KEY WORD :
RENEWING FILES
INITIALIZING FILES
THE FOLLOWING IS AN ERASED FILE
MASTER FILE NO.     FINISHED
INITIALIZE COMPLETED, STRIKE ANY KEY
* SELECT COMMAND =
```

PBACK

65.1 THE PBACK COMMAND (Backup)

The PBACK Command allows you to copy your PDATA Diskette. It has been mentioned in this guide that it is good practice to make copies of your PDATA Diskettes frequently, in order to avoid the loss of a great deal of hard work and valuable data because of a procedural mistake or accident.

NOTE: EXECUTION OF THE PBACK COMMAND ERASES ALL DATA WHICH MAY BE ON THE DISKETTE AND REPLACES IT WITH THE DATA YOU ARE COPYING. ONLY PIPS DATA DISKETTES MAY BE USED AS THE COPY MEDIA.

65.2 PBACK COMMAND EXECUTION

65.2.1 Execute the END Command. When "READY" is displayed in the upper left corner of the screen, enter "PBACK 1->0" and press "RETURN". Do not forget to put a space between "K" and "1".

65.2.3 Replace the PPRO Diskette in Drive #0 with the the diskette on which the copy will be made, then press "RETURN". Copying will be executed.

When a diskette is protected with a VOLUME KEYWORD,

THIS DATA MEDIA IS PROTECTED!

will be displayed. Input the correct keyword, then press "RETURN" and copying will be executed.

65.2.4 Re-insert the PPRO diskette and press "RETURN". PIPS will return to normal operations.

ERROR MESSAGES:

WRONG KEYWORD
SET OS DISKETTE AND STRIKE RETURN KEY

INCORRECT DATA MEDIA
SET OS DISKETTE AND STRIKE RETURN KEY

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU#--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

66.1 THE TD COMMAND (Transfer Data)

With the TD Command, data can be transmitted from one PIPS system to another on telephone lines or on a closed circuit. A network using PIPS sytems can be set up in which data input from remote stations can be processed at a central station. Acoustic couplers (options) are required for telephone lines.

66.2 SETTING THE BAUD RATE

Before transmitting data, the Baud rate (transmitting/receiving speed) must be set. This is unnecessary when transmitting on a closed circuit. Check the setting and reset when necessary to match the type of line used.

The Baud rate cannot be set with a PIPS Command; the following procedure must be used.

66.2.1 Execute the END Command.

66.2.2 Enter "SETUP", then press "RETURN".

Pressing "RETURN" moves the cursor to the next line.

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL ----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST---170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF------- 245 | SET---89 | TD---285 | W---37
IC-N--80 | IR----44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM---75

66.2.3 While watching the display, move the cursor to the input position at "BAUD RATE 9600" of the table entitled, "SIO B CHANNEL TABLE" in the lower right corner of the screen.

Pressing the space bar changes the specified value.

(1) When transmitting or receiving on a closed circuit, leave the specification as it is: "9600".

(2) When transmitting or receiving on telephone lines, use the space bar to change the specification to "300".

66.2.4 Press "W" to record the specification you want.

NOTE: IF YOU WANT TO CHANGE A PREVIOUSLY SET VALUE, BUT THE CURSOR IS ALREADY PAST THE DESIRED POSITION, RETURN THE CURSOR TO ANY POSITION YOU WANT BY REPEATEDLY PRESSING "RETURN".

66.2.5 Press "E" when the correct Baud rate has been specified.

66.2.6 Enter "CLOSE;CLOSE/1;PIPS3", then press "RETURN". PIPS will return to the COMMAND MODE.

ACM--143 | BF----105 | CA-D---58 | CF---55 | CT--------41 | DL----49 | END---4
AS---267 | BS----74 | CA-U--214 | CM--275 | CTRL----237 | DRL---64 | F-----97
AU*--270 | BT----21 | CAL----97 | COL--87 | D--------97 | ED---223 | FO---110
B----33 | CA-A--209 | CC-----42 | CS---185 | DC------53 | EF---226 | FT----248

66.3 TD COMMAND EXECUTION

When transmitting, set the diskette which contains the data you want to send. Before receiving, set the diskette for recording the data. The following procedures should be executed simultaneously on both systems as the communication link is established.

66.3.1 Execute.

66.3.2 To receive, enter "R" and press "RETURN". To transmit, enter "T" and press "RETURN".

66.3.3 Specify the PAGE(S) to be sent, or the PAGE(S) on which data received is to be recorded.

In PIPS, data that can be transmitted from the MASTER BUFFER, or a PAGE or group of PAGES in the MASTER FILE or SUB FILE.

Data can be received and recorded in the MASTER BUFFER or on a PAGE or group of consecutive PAGES in the MASTER FILE or SUB FILE. However, the same number of PAGES must be used for recording as were used to record the data in the transmitting system.

NOTE: A "C" ENTRY TO SPECIFY PAGES PREVIOUSLY SPECIFIED WITH THE SFN COMMAND CANNOT BE USED HERE.

66.3.4 Specify whether the data is to be transmitted or received in the HIGH SPEED MODE.

(1) A "Y" entry specifies data can be transmitted/received on a closed circuit at twice the normal speed.

(2) An "N" entry specifies data can be transmitted/received on a closed circuit at the speed set in 66.2.3.

NOTE: THE SAME SPECIFICATION MUST BE IN EFFECT FOR BOTH THE RECEIVING AND TRANSMITTING SYSTEMS IN A COMMUNICATION LINK.

G---- 26 | IC-Y---46 | L------91 | ML---54 | P----------23 | RF---56 | SORT---157 | TRS---73
GF--247 | IL----77 | LF----232 | MT---15 | PBACK----284 | SB----76 | ST----170 | UPD--195
GR--119 | IN---282 | MAR--147 | NF--166 | PF-------245 | SET---89 | TD----285 | W----37
IC-N--80 | IR----44 | MAW--147 | O ----9 | PROTECT---276 | SFN--203 | TRM---75

T D TRANSFER DATA

66.3.5 As soon as both systems are prepared, press the space bar in both systems at the same time.

In closed-circuit communication, when the SPACE BAR (or any other key is pressed), the data on the specified PAGE(S) is sent automatically from the transmitting to the receiving system.

When a communication link cannot be established with the remote system, it counts as one error.

If another attempt is made to establish communications with the remote system, repeat from 6.3.1.

PROMPTS T D

```
* SELECT COMMAND = TD
RECEIVE OR TRANSMIT (R,T) : R
PAGE NUMBER (S) ((WITH(,),B,C): 1
FAST MODE ? (Y,N) : Y
```


ACM--143 | BF ---- 105 | CA-D ---58 | CF --- 55 | CT -------- 41 | DL---- 49 | END --- 4
AS --- 267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ---- 237 | DRL--- 64 | F----- 97
AU*--270 | BT---- 21 | CAL---- 97 | COL -- 87 | D -------- 97 | ED---223 | FO --- 110
B---- 33 | CA-A -- 209 | CC ----- 42 | CS---185 | DC------ 53 | EF---226 | FT----248

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AS ---267 | BS ---- 74 | CA-U -- 214 | CM -- 275 | CTRL ----237 | DRL--- 64 | F ----- 97
AU#--270 | BT ---- 21 | CAL ---- 97 | COL -- 87 | D ------- 97 | ED---223 | FO ---110
B ---- 33 | CA-A -- 209 | CC ----- 42 | CS ---185 | DC ------ 53 | EF---226 | FT----248

ALPHABETICAL LISTING

COMMAND	NAME
ACM	ACCUMULATION
AS	AUTOMATIC OPERATION SETTING
AU#	AUTOMATIC OPERATION USE
B	SHOW MASTER BUFFER
BF	SHOW FIGURE BUFFER
BS	SHOW SUB BUFFER
BT	SHOW TITLE BUFFER
CA-A	COLUMN ARRANGE
CA-D	COLUMN ARRANGE
CA-U	COLUMN ARRANGE
CAL	CALCULATION
CC	CHANGE COMMENT
CF	CHANGE FORMAT
CM	CHANGE MEDIA
COL	COLOR
CS	CONDITIONAL SEARCH
CT	CHANGE TITLE
CTRL-a	SIMULATION
DC	DELETE COLUMN
DL	DELETE LINE
DRL	DRAW LINE
ED	EDIT
EF	ENTRY WITH FORMAT
END	END
FO	FIGURE BUFFER OPERATION
FT	SHOW FUNCTION KEY TABLE
G	GET
GF	GET FUNCTION KEY
GR	GRAPH
IC-N	INSERT COLUMN
IC-Y	INSERT COLUMN
IL	INSERT LINE
IN	INITIALIZE DATA MEDIA
IR	INSERT ROW
L	LIST
LF	LIST WITH FORMAT
MAR	MATRIX READ
MAW	MATRIX WRITE
ML	MOVE LINE
MT	MAKE TABLE
NF	NEW FORMAT
O	ORIGINAL FILE
P	PUT
PBACK	PDATA BACKUP
PF	PUT FUNCTION KEY
PROTECT	PROTECT DATA
RF	RESET FORMAT
SB	SWAP BUFFER
SET	SET
SFN	SEARCH FILE NAME
SORT	SORT
ST	SUB TOTAL
TD	TRANSFER DATA
TRM	TRANSFER SUB BUFFER TO MASTER BUFFER
TRS	TRANSFER MASTER BUFFER TO SUB BUFFER
UPD	UPDATE
W	WRITE

G ---- 26 | IC-Y---46 | L ------91 | ML---54 | P ---------23 | RF--- 56 | SORT---157 | TRS---73
GF -- 247 | IL ---- 77 | LF----232 | MT---15 | PBACK---- 284 | SB ----76 | ST --- 170 | UPD--195
GR --119 | IN---282 | MAR--147 | NF --166 | PF ------- 245 | SET---89 | TD --- 285 | W ---37
IC-N--80 | IR ---- 44 | MAW--147 | O ---- 9 | PROTECT---276 | SFN--203 | TRM ---75

GUIDE TO PIPS III
SAMPLE DISKETTE

B T RETURN

```
                ****   TITLE  FILE   ****

 1: <DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>      ( 0. 0. 0) F10
 2: <DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>      ( 0. 0. 0) F13
 3: <EMPLOYEES-NORTH SHOP>                               ( 0. 0. 0) F17
 4: <EMPLOYEES-SOUTH SHOP>                               ( 0. 0. 0) F17
 5: <DAILY SALES, NORTH SHOP:  26 SEP-2 OCT>             ( 0. 0. 0) F15
 6: <DAILY SALES, NORTH SHOP:  3 OCT-9 OCT>              ( 0. 0. 0) F15
 7: <CUSTOMER LIST 15>                                   ( 0. 0. 0) F35
 8: <CUSTOMER LIST 16>                                   ( 0. 0. 0) F32
 9: <CUSTOMER LIST 17>                                   ( 0. 0. 0) F36
10: <NORTH SHOP SALES>                                   ( 0. 0. 0) F58
12: <BLOCK SEARCH>                                       ( 0. 0. 0) F35
13: <UPD COMMAND EXAMPLE>                                ( 0. 0. 0) F46
14: <EMPLOYEES: NORTH & SOUTH SHOPS>                     ( 0. 0. 0) F27
15: <EMPLOYEE HOURS: 30 NOV 82>                          ( 0. 0. 0) F12
16: <NORTH & SOUTH SHOP: TOTAL HOURS>                    ( 0. 0. 0) F27
18: <FORM - CUSTOMER LIST>                               ( 0. 0. 0) N60
19: <INDIVIDUAL SALES REPORT FORM>                       ( 0. 0. 0) N17
24: <MONTHLY SALES TARGETS - VAN CLAUSEN>                ( 0. 0. 0) F14
25: <MONTHLY SALES TARGETS - VAN CLAUSEN - EXAMPLE CTRL>( 0. 0. 0) N6
26: <SIMULATION>                                         ( 0. 0. 0) F20
27: <SIMULATION - LOCATION SPECIFICATIONS AND FORMULAE>  ( 0. 0. 0) N24
28: <PROJECT ANALYSIS>                                   ( 0. 0. 0) F15
29: <DEMO1>                                              ( 0. 0. 0) N41
30: <DEMO2>                                              ( 0. 0. 0) N14

                ****  END  OF  TITLE  FILE  ****
```

Page no. 1

```
1  : <DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>     ( 0. 0. 0) F10    PAGE  1
2  :
3  :     MONTH/DEPT    W. COATS  W. DRESSES    W. SUITS   M. COATS   M.SUITS
4  :
5  :        JANUARY        4580        3200        3560       1860      3250
6  :       FEBRUARY        3500        3700        2300       1940      2670
7  :          MARCH        2420        4310        1941        800      1800
8  :
9  : comment : P. JONES. PLANNING
10 : f14,12,12,12,12,12,/4
```

2

```
1  : <DISTRIBUTION OF SALES BY DEPARTMENT AND MONTH>     ( 0. 0. 0) F13    PAGE  2
2  :
3  :  MONTH/DEPT      W. COATS  W. DRESSES    W. SUITS   M. COATS   M.SUITS
4  :
5  :  JANUARY            4580        3200        3560       1860      3250
6  :  FEBRUARY           3500        3700        2300       1940      2670
7  :  MARCH              2420        4310        1941        800      1800
8  :  APRIL              1800        4500        1500        600      3500
9  :  MAY                1900        4600        1300        500      3800
10 :  JUNE               1800        4500        1400        500      3500
11 :
12 : comment : P. JONES, PLANNING
13 : f14,12,12,12,12,12,/4
```

3

```
1  : <EMPLOYEES-NORTH SHOP>                              ( 0. 0. 0) F17    PAGE  3
2  :
3  :  NUMBER  NAME                    TELEPHONE   DAY OFF
4  :
5  :  N1      HARRIS, JUDY            821-7432    WED
6  :  N2      BLOOM, ALAN             782-8756    FRI
7  :  N3      MARSHALL, TOM           879-5239    SUN
8  :  N4      SILKOFF, BILL           345-1287    THU
9  :  N5      KISMAN, MIKE            631-6745    SUN
10 :  N6      JONES, BILLIE           822-5829    SAT
11 :  N7      HARRIS, SALLI           721-9078    MON
12 :  N8      ZOLLINGER, LINDA        731-4561    WED
13 :  N9      HEWITT, DENNIS          721-8937    SUN
14 :  N10     BROWNYER, BOB           732-2965    SUN
15 :
16 : comment :
17 : f8,20,11,9,/4
```

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 4

```
1  : <EMPLOYEES-SOUTH SHOP>                                    ( 0, 0, 0) F17   PAGE 4
2  :
3  : NUMBER  NAME                    TELEPHONE   DAY OFF
4  :
5  : S1      MYER, BOB               876-2417    SUN
6  : S2      BURK, BOB               549-2389    SAT
7  : S3      BENCH, RALPH            951-1679    WED
8  : S4      ROGERS, TOM             541-7777    SUN
9  : S5      BROWN, DICK             791-5489    TUE
10 : S6      BREEN, GEORGE           826-7553    WED
11 : S7      SCULLY, RALPH           223-2349    THU
12 : S8      SWAILES, BILL           488-3327    SUN
13 : S9      WARGO, BILL             299-5133    FRI
14 : S10     WALTZ, RON              622-7531    SAT
15 :
16 : comment !
17 : f8,20,11,9,/4
```

5

```
1  : <DAILY SALES, NORTH SHOP: 26 SEP-2 OCT>                   ( 0, 0, 0) F15   PAGE 5
2  :
3  : DAY                         SALES
4  :
5  : MON                           850
6  : TUE                           920
7  : WED                           800
8  : THU                           650
9  : FRI                          1200
10 : SAT                          1500
11 : SUN                          1400
12 : TOTAL, 26 SEP-2 OCT 82:
13 :
14 : comment !
15 : f24,7,/4
```

6

```
1  : <DAILY SALES, NORTH SHOP: 3 OCT-9 OCT>                    ( 0, 0, 0) F15   PAGE 6
2  :
3  : DAY                         SALES   RUNNING TOTAL
4  :
5  : MON                           875
6  : TUE                          1020
7  : WED                           850
8  : THU                           600
9  : FRI                          1350
10 : SAT                          1575
11 : SUN                          1450
12 : TOTAL, 26 SEP-9 OCT 82:
13 :
14 : comment !
15 : f24,7,15,/4
```

7

```
1  : <CUSTOMER LIST 15>                                        ( 0, 0, 0) F35   PAGE 7
2  :
3  : NAME                  SEX  HT   WT  BIRTH DATE        ADDRESS              TELEPHONE  SHOP
4  :
5  : TAYLOR, CHERYL         F   22  123  25/10/60     7495 LAWYER RD.          774-1737   NORTH
6  : WRIGHT, REGGIE         M    5  145  28/02/42  5516 SPRINGDALE RD.         284-2287   WEST
7  : WINTERS, KARL          M   14  180  21/11/50        5 MOYER PL.           231-4498   EAST
8  : ROBERTS, MARSHA        F    3  115  08/07/38     3618 ROBB AVE.           232-3240   EAST
9  : PITMAN, LOUIS          M    1  134  28/02/44    454 EASTERN AVE.          229-2376   WEST
10 : TURNAU, ALMA           F    3  102  01/08/62     330 FOREST AVE.          941-9834   WEST
11 : FOREACRE, CHRIS        F    2  106  23/11/64   1933 WAYLAND AVE.          328-1734   WEST
12 : SMITH, CHERYL          F    2  104  14/03/30     1473 EATON AVE.          874-6747   SOUTH
13 : SEAL, KATHY            F    3  110  12/04/48     6520 MEIS AVE.           232-1589   NORTH
14 : RUMPKE, BERNARD        M   16  210  23/06/32  1234 NORTH BEND RD.         874-8221   SOUTH
15 : HUXEL, GUY             M    2  150  15/02/54      207 HOLLY LN.           861-7339   WEST
16 : PEABODY, ANN           F    8  115  18/09/50   2201 TOWNHILL RD.          531-8890   NORTH
17 : RAITT, TERRY           M    9  160  03/02/48     5 GRIFFITHS AVE.         922-0075   SOUTH
18 : SEAL, RICHARD          M    1  178  13/01/49     6520 MEIS AVE.           232 1589   WEST
19 : HUMES, THOMAS          M    9  220  12/01/49   2219 MADISON AVE.          661-9780   NORTH
20 : GITTLEMAN, BETTY       F    4  120  23/08/29       12 CINDY LN.           422-7890   EAST
21 : MYERS, PEGGY           F    3  109  13/12/40     1419 SUTTON DR.          876-5589   NORTH
22 : MARSHALL, NANCY        F    3  116  24/03/45     1512 BEECH AVE.          749-3398   SOUTH
23 : GOLDBERG, JODY         M    8  122  25/07/32      408 BAUER RD.           231-8907   SOUTH
24 : RUSH, BARBARA          F   10  140  31/05/44     9831 CAPSTAN DR.         777-1889   SOUTH
25 : WELLS, DANIEL          M   15  145  31/12/55     1086 LANNY LN.           221-8140   SOUTH
26 : MOUCH, WILLIAM         M   14  220  23/03/21  2186 HARRISON AVE.          231-6448   WEST
27 : JACKSON, HOLLY         F   11  125  19/08/44     5151 CAPITOL DR.         285-2299   WEST
28 : GREENWELL, STEVE       M   15  250  23/09/48      2134 AIKENSIDE          631-9021   NORTH
29 : HART, BUDDY            M    8  152  09/05/59     789 WILFORD RD.          229-3880   EAST
30 : FRANKL, MARGARET       F    3  115  16/06/37   1220 GULFPORT DR.          821-4589   EAST
31 : TORREANO, MICHAEL      M   13  195  12/12/48     6906 THORNDIKE           332-8970   NORTH
32 : REIS, JANE             F    1  117  15/09/52   4639CLAYTON DR.            821-3387   WEST
33 :
34 : comment !
35 : f20,5,4,5,12,20,11,7,/4
```

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 8

1 : <CUSTOMER LIST 16> (0. 0. 0) F32 PAGE 8
2 :

3 : NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
4 :							
5 : MARLATTE, ROGER	M	9	145	03/02/34	2356 PARK AVE.	671-0936	SOUTH
6 : FRUMP, ALICE	F	4	110	02/01/62	3500 ROBROY DR.	271-9372	EAST
7 : TAKEUCHI, STEVEN	M	7	178	02/06/48	2710 REUBERG AVE.	671-0022	EAST
8 : WOODYARD, MELISSA	F	2	116	06/12/47	1324 HILLCREST DR.	231-4592	NORTH
9 : SALYERS, GEORGETTA	F	7	150	04/04/44	34 34 W. 71ST ST.	531-9832	WEST
10 : KING, REBECCA	F	4	135	09/07/40	63 JOLAIN DR.	738-3816	EAST
11 : COLE, LOUIS	M	5	160	04/08/37	633 BRANDY WAY	791-9284	SOUTH
12 : BURESS, BARRY	M	15	185	08/02/41	506 RIDDLE RD.	251-3826	SOUTH
13 : ROTH, BARBARA	F	1	121	08/06/49	100 FORRESTER RD.	471-5836	EAST
14 : HARPER, LARRY	M	16	240	03/12/58	984 PARADOME	771-9372	NORTH
15 : CARPENTER, STANLEY	M	11	198	10/05/45	3455 ELM ST.	232-9581	WEST
16 : FOLEY, VICKI	F	4	109	04/05/46	14 VINE ST.	232-9581	EAST
17 : SCHEVE, TINA	F	0	102	03/07/58	50 STATE AVE.	232-1947	SOUTH
18 : BURRESS, DIANNE	F	1	101	11/12/49	506 RIDDLE RD.	252-3826	SOUTH
19 : KNOWLIN, VICKI	F	4	109	14/05/46	6969 NEWPORT NEWS	521-9478	SOUTH
20 : KING, PATRICIA	F	3	110	16/03/50	22 WAYCROSS RD.	777-8351	EAST
21 : BUTCHKES, BRYNA	F	8	109	18/04/55	400 COMPTON LAKE	625-8947	NORTH
22 : FINKLEMAN, LINDA	F	12	112	15/04/57	105 JULEP LN.	471-8246	WEST
23 : HARRISON, LINDA	F	3	115	27/06/56	7075 STOUT RD.	631-8739	EAST
24 : EGGERMAN, RINI	F	1	112	12/02/42	289 N. ERIE HWY	771-9472	SOUTH
25 : ORTNER, ROBERT	M	9	185	24/08/31	2110 HARKNESS	661-9371	WEST
26 : RAITT, BONNIE	F	5	120	30/09/80	5843 CHARTEROAK	321-9732	NORTH
27 : AHERN, SARA LOU	F	4	220	24/05/46	233 SOUTH BEND	874-7281	WEST
28 : SCHWCZ, RAVLI	M	0	225	04/14/48	1012 WEST SEYMOUR	221-9572	WEST
29 : DRACH, CHRIS	F	1	110	19/01/44	3330 JEFFERSON AVE.	552-8126	SOUTH

30 :
31 : comment :
32 : f20,5,4,5,12,20,11,7,/4

9

1 : <CUSTOMER LIST 17> (0. 0. 0) F36 PAGE 9
2 :

3 : NAME	SEX	HT	WT	BIRTH DATE	ADDRESS	TELEPHONE	SHOP
4 :							
5 : FISHER, LYNN	F	2	102	24/07/42	43 EAST KNOLL CT.	661-8361	NORTH
6 : STEVENSON, SUE	F	1	110	16/12/45	105 WELLINGWOOD	553-8351	SOUTH
7 : BLOCK, LEE	F	1	115	08/06/38	444 PROBASCO	874-8361	EAST
8 : SEBASTIAN, GUNTHER	M	12	205	04/05/58	7209 PLAINFIELD	471-1528	EAST
9 : WALTZ, RON	M	14	210	18/02/55	67 WHITEHALL CR.	961-7222	NORTH
10 : VAN ATTA, KATHY	F	9	125	13/06/48	107 READING RD.	739-1337	SOUTH
11 : BREYLEY, BETTY	F	3	165	18/09/48	30 VINE ST.	231-2442	WEST
12 : TRUJILLO, RAYMOND	M	14	186	26/11/30	74 GLORIA AVE.	321-1328	WEST
13 : MILLER, LINDA	F	3	108	25/09/50	3425 SHANNON	777-1122	EAST
14 : COX, JEFFERY	M	9	158	15/08/52	132 DONALDSON RD.	821-7722	NORTH
15 : TRACY, TRENT	M	12	205	03/02/47	29 VINE STREET	231-2441	EAST
16 : HARRISON, SHEILA	F	9	125	02/06/56	3302 PHOENIX AVE.	793-4321	WEST
17 : MACSPADDEN, PATSY	F	4	114	24/03/45	5444 GLENMORE	756-1832	WEST
18 : HAYES, DONNA	F	3	108	03/05/44	18 ZUNSEL AVE.	231-2287	NORTH
19 : ZIMMERMAN, JOYCE	F	9	160	12/07/39	3445 ELWYNN DR.	221-6712	EAST
20 : CROMWELL, MYRTLE	F	5	130	23/02/23	74 GLORIA AVE.	782-2163	SOUTH
21 : RICHARDSON, ALTHEA	F	4	116	04/01/38	509 RIDDLE RD.	825-5511	WEST
22 : DAVIDSON, CLEAT	M	8	160	16/07/28	871 HANSON DR.	271-6227	WEST
23 : HAVERKOS, PAUL	M	7	168	21/01/37	1256 EIGHT MILE RD.	553-8899	NORTH
24 : STAUTZENBACH, JUDY	F	3	116	02/06/44	641 OAK AVE.	242-1111	SOUTH
25 : PECK, NANCY	F	3	119	19/03/40	4254 ALLENDORF	471-2001	SOUTH
26 : LEMON, SARA	F	2	115	13/07/37	690 SEAL AVE.	661-6578	SOUTH
27 : PETER, BOB	M	11	187	04/05/49	440 LAFAYETTE RD.	871-7711	EAST
28 : GRANITIER, JUNE	F	8	109	09/02/32	3456 RIDGECLIFFE	774-5588	WEST
29 : LEETH, LARRY	M	9	188	06/09/50	9043 EUCLID AVE.	762-1122	EAST
30 : ST. JOHN, MARSHA	F	2	116	15/10/34	111 CAMPBELL RD.	871-2244	EAST
31 : TIEBOUT, SANDRA	F	5	108	28/03/48	2916 WEAVER RD.	825-2017	SOUTH
32 : TANKERSLEY, MARY	F	9	128	16/08/48	17 VAN KIRK	752-0110	WEST
33 : BENZ, JUDY	F	2	109	14/07/48	132 NORTH BEND RD.	221-0034	EAST

34 :
35 : comment :
36 : f20,5,4,5,12,20,11,7,/4

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 10

```
1  : (NORTH SHOP SALES)                                   ( 0. 0. 0) F58   PAGE  10
2  :
3  :   DATE  CLERK  DEPARTMENT          MAKER            STOCK #  PRICE
4  :  ------------------------------------------------------------------
5  :   12/19   N1     DRESSES      SACHS & RICHARDS      SR0411     60
6  :   12/19   N2       SHOES      SACHS & RICHARDS      SR0281     65
7  :   12/19   N4     M.COATS      SACHS & RICHARDS      SR0644    215
8  :   12/19   N2       SHOES          BOSTON TOWN       BT2256     55
9  :   12/19   N2       SHOES          VAN CLAUSEN       VC0243     55
10 :   12/19   N7     W.SUITS          BOND STREET       BS0501     18
11 :   12/19   N7     DRESSES      SACHS & RICHARDS      SR0411     60
12 :   12/19   N3       SHOES      SACHS & RICHARDS      SR0281     65
13 :   12/19   N3       SHOES          BOSTON TOWN       BT0256     55
14 :   12/19   N5     M.COATS          BOND STREET       BS0610    310
15 :   12/19   N7     DRESSES          BOND STREET       BS0486    110
16 :   12/19   N5     M.COATS          BOSTON TOWN       BT0647    225
17 :   12/19   N1     DRESSES          BOSTON TOWN       BT0456     85
18 :   12/19   N8     DRESSES      SACHS & RICHARDS      SR0421     75
19 :   12/19   N7     DRESSES          BOSTON TOWN       BT0455     65
20 :   12/19   N4     M.SUITS      SACHS & RICHARDS      SR0791    210
21 :   12/19   N1     DRESSES          BOSTON TOWN       BT0455     65
22 :   12/19   N9     M.SUITS      SACHS & RICHARDS      SR0791    210
23 :   12/19   N7     DRESSES      SACHS & RICHARDS      SR0431     85
24 :   12/19   N8     DRESSES          VAN CLAUSEN       VC0449     55
25 :   12/19   N1     DRESSES          VAN CLAUSEN       VC0449     55
26 :   12/19   N6     W.COATS          BOND STREET       BS0395    220
27 :   12/19   N6     W.COATS          BOND STREET       BS0399    300
28 :   12/19   N7     W.SUITS          VAN CLAUSEN       VC0588    215
29 :   12/19   N2       SHOES      SACHS & RICHARDS      SR0281     65
30 :   12/19   N7     W.COATS          VAN CLAUSEN       VC0367    180
31 :   12/19   N6     W.COATS          BOSTON TOWN       BT0346    135
32 :   12/19   N4     M.SUITS      SACHS & RICHARDS      SR0792    215
33 :   12/19   N6     W.SUITS          BOND STREET       BT0500    210
34 :   12/19   N4     M.SUITS      SACHS & RICHARDS      SR0792    215
35 :   12/19  N10     M.SUITS          BOSTON TOWN       BT0733    315
36 :   12/19   N7     W.SUITS      SACHS & RICHARDS      SR0534    310
37 :   12/19   N3       SHOES      SACHS & RICHARDS      SR0282     80
38 :   12/19   N8     DRESSES      SACHS & RICHARDS      SR0431     85
39 :   12/19   N5     M.SUITS          BOND STREET       BS0717    135
40 :   12/19   N6     W.SUITS      SACHS & RICHARDS      SR0533    250
41 :   12/19   N2       SHOES          BOND STREET       BS0220     85
42 :   12/19   N2       SHOES      SACHS & RICHARDS      SR0281     65
43 :   12/19   N7     W.COATS      SACHS & RICHARDS      SR0372    150
44 :   12/19   N4     M.COATS      SACHS & RICHARDS      SR0640    135
45 :   12/19   N9     M.COATS          BOND STREET       BS0611    350
46 :   12/19   N3       SHOES          BOND STREET       BS0220     85
47 :   12/19   N4     M.SUITS          BOND STREET       BS0784    350
48 :   12/19   N6     W.COATS      SACHS & RICHARDS      SR0398    300
49 :   12/19   N1     DRESSES      SACHS & RICHARDS      SR0421     75
50 :   12/19   N9     M.COATS          BOND STREET       BS0610    310
51 :   12/19   N3       SHOES          VAN CLAUSEN       VC0423     45
52 :   12/19  N10     M.COATS      SACHS & RICHARDS      SR0645    290
53 :   12/19  N10     M.SUITS          VAN CLAUSEN       VC0727    195
54 :   12/19   N8     DRESSES          BOND STREET       BS0486    110
55 :   12/19   N7     DRESSES          VAN CLAUSEN       VC0444     55
56 :  ------------------------------------------------------------------
57 : comment :
58 : f6,7,12,20,12,7,/4
```

12

```
1  : (BLOCK SEARCH)                                       ( 0. 0. 0) F35   PAGE  12
2  :
3  :   ORDER          BUYER          ITEM  QTY  PRICE
4  :  ------------------------------------------------
5  :    1250  McCLUSKEY, LEON      BS0611   12    290
6  :                               BS0399   10    250
7  : -                             BS0220   25     60
8  :    1251  McCLUSKEY, LEON      BS0784    9    290
9  : -                             BS0486   15     85
10 :    1252  McCLUSKEY, LEON      BS0610    5    280
11 :                               BS0717    8     89
12 :                               BS0500    9    210
13 : -                             BS0220   12     85
14 :    1680     MALONE, TOM       BT0256   35     55
15 :                               BT0455   40     65
16 : -                             BT0647   10    225
17 :    1681     MALONE, TOM       BT0455   40     65
18 :                               BT0733    8    315
19 : -                             BT2256   25     55
20 :    1450    BURLEW, RANDY      SR0421   14     85
21 : -                             SR0792    5    215
22 :    1451    BURLEW, RANDY      SR0281   12     65
23 :                               SR0644    6    215
24 : -                             SR0645    6    290
25 :    1452    BURLEW, RANDY      SR0421   25     75
26 :                               SR0398    8    300
27 : -                             SR0792    8    215
28 :    1965    GLASS, MELVIN      VC0727    9    195
29 :                               VC0588    2    215
30 :                               VC0423   40     45
31 :                               VC0243   35     55
32 : -                             VC0449   35     55
33 :  ------------------------------------------------
34 : comment :
35 : f7,17,10,5,7,/4
```

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 13

<UPD COMMAND EXAMPLE>

SECTION	MAKER	STOCK #	COST	PRICE
CASUAL WEAR	BOND STREET	BS0488	25	35
		BS0486	95	110
		BS0489	50	55
	BOSTON TOWN	BT0455	45	65
		BT0462	45	60
		BT0463	50	75
	SACHS & RICHARDS	SR0431	65	85
		SR0421	60	75
		SR0416	75	90
		SR0415	60	79
		SR0414	25	35
		SR0413	34	50
		SR0412	40	45
		SR0411	50	60
	VAN CLAUSEN	VC0444	45	55
		VC0463	85	110
		VC0432	85	90
		VC0449	50	55
EVENING WEAR	BOND STREET	BS0491	170	195
		BS0487	190	250
		BS0490	280	30
		BS0485	75	85
	BOSTON TOWN	BT0461	285	300
		BT0460	185	215
		BT0459	175	200
		BT0458	130	150
		BT0457	85	100
		BT0456	70	85
	SACHS & RICHARDS	SR0418	130	145
		SR0417	85	110
		SR0410	120	145
		SR0491	140	165
		SR0499	185	215
	VAN CLAUSEN	VC0468	175	200
		VC0467	160	180
		VC0466	155	165
		VC0465	135	150
		VC0464	120	135

comment :
f14,1,18,10,8,7,/4

14

<EMPLOYEES: NORTH & SOUTH SHOPS>

NUMBER	NAME	TELEPHONE	DAY OFF
S3	BENCH, RALPH	951-1679	WED
N2	BLOOM, ALAN	782-8756	FRI
S6	BREEN, GEORGE	826-7553	WED
S5	BROWN, DICK	791-5489	TUE
N10	BROWNYER, BOB	732-2965	SUN
S2	BURK, BOB	549-2389	SAT
N1	HARRIS, JUDY	821-7432	WED
N7	HARRIS, SALLI	721-9078	MON
N9	HEWITT, DENNIS	721-8937	SUN
N6	JONES, BILLIE	822-5829	SAT
N5	KISMAN, MIKE	631-6745	SUN
N3	MARSHALL, TOM	879-5239	SUN
S1	MYER, BOB	876-2417	SUN
S4	ROGERS, TOM	541-7777	SUN
S7	SCULLY, RALPH	223-2349	THU
N4	SILKOFF, BILL	345-1287	THU
S8	SWAILES, BILL	488-3327	SUN
S10	WALTZ, RON	622-7531	SAT
S9	WARGO, BILL	299-5133	FRI
N8	ZOLLINGER, LINDA	731-4561	WED

comment :
f8,20,11,9,/4

15

<EMPLOYEE HOURS: 30 NOV 82>

NAME	HOURS	OVERTIME
BLOOM, ALAN	8	2
BURK, BOB	5	
HEWITT, DENNIS	8	4
JONES, BILLIE	6	
ROGERS, TOM	8	8

comment :
f20,7,10,/4

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 16

```
1  : <NORTH & SOUTH SHOP: TOTAL HOURS>                    ( 0. 0. 0) F27   PAGE 16
2  :
3  : NUMBER  NAME                 TELEPHONE  DAY OFF  HOURS  OVERTIME
4  : ------  -------------------  ---------  -------  -----  --------
5  : S3      BENCH, RALPH         951-1679   WED        80        15
6  : N2      BLOOM, ALAN          782-8756   FRI        80        18
7  : S6      BREEN, GEORGE        826-7553   WED        80        18
8  : S5      BROWN, DICK          791-5489   TUE        78        10
9  : N10     BROWNYER, BOB        732-2965   SUN        60         5
10 : S2      BURK, BOB            549-2389   SAT        80         8
11 : N1      HARRIS, JUDY         821-7432   WED        75         5
12 : N7      HARRIS, SALLI        721-9078   MON        80        16
13 : N9      HEWITT, DENNIS       721-8937   SUN        80        20
14 : N6      JONES, BILLIE        822-5829   SAT        70         5
15 : N5      KISMAN, MIKE         631-6745   SUN        80         7
16 : N3      MARSHALL, TOM        879-5239   SUN        80        26
17 : S1      MYER, BOB            876-2417   SUN        80        28
18 : S4      ROGERS, TOM          541-7777   SUN        80        28
19 : S7      SCULLY, RALPH        223-2349   THU        75        10
20 : N4      SILKOFF, BILL        345-1287   THU        80         5
21 : S8      SWAILES, BILL        488-3327   SUN        72         0
22 : S10     WALTZ, RON           622-7531   SAT        80        18
23 : S9      WARGO, BILL          299-5133   FRI        80         0
24 : N8      ZOLLINGER, LINDA     731-4561   WED        72         0
25 :
26 : comment :
27 : f8,20,11,9,7,10,/4
```

18

```
1  : <FORM - CUSTOMER LIST>                               ( 0. 0. 0) N60   PAGE 18
2  :
3  : 1.  NAME  @XXXXXXXXXXXXXXXXXXX
4  :
5  : 2.  SEX  @AAAAA   3.  HT  @KKKK  4.  WT  @KKKKK
6  :
7  : 5.  BIRTH DATE  @NNXXNNXXNNXXXX
8  :
9  : 6.  ADDRESS  @XXXXXXXXXXXXXXXXXXX
10 :
11 : 7.  TELEPHONE  @NNNXXNNNXXXX
12 :
13 : 8.  SHOP  @AAAAAAA
14 :
15 :
```

19

```
1  : <INDIVIDUAL SALES REPORT FORM>                       ( 0. 0. 0) N17   PAGE 19
2  : &10
3  : ----------------------------------------
4  : &14
5  : INDIVIDUAL SALES REPORT
6  : &15
7  :
8  : CLERK        %0,2
9  : DATE         %0,1
10 : DEPARTMENT   %0,3
11 :
12 : MAKER        %0,4
13 : STOCK #      %0,5
14 : PRICE        %0,6
15 :
16 : ----------------------------------------
17 : *
```

24

```
1  : <MONTHLY SALES TARGETS - VAN CLAUSEN>                ( 0. 0. 0) F14   PAGE 24
2  :
3  :  STOCK #  TARGET   COST  RETAIL   GROSS     NET
4  :  -------  ------  -----  ------  ------  ------
5  :    VC0727      10     40      80     800     400
6  :    VC0588      20     45      90   1,800     900
7  :    VC0423      30     30      60   1,800     900
8  :    VC0243      40     50     100   4,000   2,000
9  :    VC0499      50     20      40   2,000   1,000
10 :  -------  ------  -----  ------  ------  ------
11 :    TOTALS                         10,400   5,200
12 :
13 : comment : EXAMPLE ONE - CTRL @
14 : f8,8,8,8,8,8,/4
```

25

```
1  : <MONTHLY SALES TARGETS - VAN CLAUSEN - EXAMPLE CTRL>( 0. 0. 0) N6   PAGE 25
2  : *,2,4 *,3,5 *,4,4
3  : E
4  : M.,2*M.,4=M.,5;M.,5-(M.,2*M.,3)=M.,6;ADD(R5,9,5]=M11,5;ADD(R5,9,6]=M11,6
5  : M.,5-(M.,2*M.,3)=M.,6;ADD(R5,9,5]=M11,5;ADD(R5,9,6]=M11,6
6  : *
```

Page no. 26

```
1  : (SIMULATION)                                    ( 0. 0. 0) F20    PAGE  26
2  :
3  : SALES PERSON      SALARY   TOTAL   SALES   COMMISSION-  COMMISSION(%)  COMMISSION  MONTHLY IND.  AVE. MATE-  PRO-RATED DI-    COST   PROFIT
4  :                            SALES   TARGET   ABLE SALES                                 INCOME     IAL COST    RECT COST
5  :
6  : HARRIS, JUDI        2,400  10,000   6,000        4,000            8         320       2,720       5,000          800   8,520    1,480
7  : BLOOM, ALAN         1,600   5,000   4,000        1,000           10         100       1,700       2,500          800   5,000        0
8  : MARSHALL, TOM       1,400   5,000   4,000        1,000           10         100       1,500       2,500          800   4,800      200
9  : SILKOFF, BILL       1,500   6,000   4,500        1,500           10         150       1,650       3,000          800   5,450      550
10 : KISMAN, MIKE        1,800   8,000   6,000        2,000            9         180       1,980       4,000          800   6,780    1,220
11 : JONES, BILLIE       2,100   9,000   7,000        2,000          8.5         170       2,270       4,500          800   7,570    1,430
12 : HARRIS, SALLI       2,300  10,000   6,000        4,000          8.3         332       2,632       5,000          800   8,432    1,568
13 : ZOLLINGER, L.       1,600   5,000   4,000        1,000           10         100       1,700       2,500          800   5,000        0
14 : HEWITT, DENNIS      1,300   4,000   3,000        1,000           10         100       1,400       2,000          800   4,200     -200
15 : BROWNYER, BOB       2,500  12,000   7,000        5,000            7         350       2,850       6,000          800   9,650    2,350
16 :
17 :          TOTALS    18,500  74,000  51,500       22,500           91       1,902      20,402      37,000        8,000  65,402    8,598
18 :
19 : comment :
20 : f15,10,10,10,15,15,11,12,12,15,10,10,/4
```

27

```
1  : (SIMULATION - LOCATION SPECIFICATIONS AND FORMULAE) ( 0. 0. 0) N24    PAGE  27
2  : *,2,7
3  : *,3,11
4  : *,4,16
5  : *,6,21
6  : E
7  : ADD[R6,15,2]=M17,2:M.,2+M.,7+M.,8:ADD[R6,15,8]=M17,8:
8  : ADD[C8,10,.]=M.,11:M.,3-M.,11=M.,12:ADD[R6,15,11]=M17,11:
9  : ADD[R6,15,12]=M17,12
10 : :
11 : M.,3+,5=M.,9:M.,3-M.,4=M.,5:M.,5=M.,6/100=M.,7:
12 : ADD[R6,15,3]=M17,3:ADD[R6,15,5]=M17,5:ADD[R6,15,7]=M17,7:
13 : M.,2+M.,7=M.,8:ADD[R6,15,8]=M17,8:ADD[C8,10,.]=M.,11:
14 : M.,3-M.,11=M.,12:ADD[R6,17,11]=M17,11:ADD[R6,15,12]=M17,12
15 : :
16 : M.,3-M.,4=M.,5:M.,5=M.,6/100=M.,7:ADD[R6,15,4]=M17,4:
17 : ADD[R6,15,7]=M17,7:M.,2+M.,7=M.,8:ADD[R6,15,8]=M17,8:
18 : ADD[C8,10,.]=M.,11:M.,3-M.,11=M.,12:ADD[R6,15,11]=M17,11:
19 : ADD[R6,15,12]=M17,12
20 : :
21 : M.,5+M.,6/100=M.,7:ADD[R6,15,7]=M17,7:M.,2+M.,7=M.,8:
22 : ADD[C8,10,.]=M.,11:M.,3-M.,11=M.,12:ADD[R6,15,11]=M17,11:
23 : ADD[R6,15,12]=M17,12
24 : *
```

28

```
1  : (PROJECT ANALYSIS)                              ( 0. 0. 0) F15    PAGE  28
2  :
3  : PROJECT          FEE      COST     PROFIT
4  :
5  : ALPHA          8,000    2,000      6,000
6  : BRAVO          6,000    4,000      2,000
7  : CHARLIE        9,000    1,000      8,000
8  : DELTA          9,500    5,000      4,500
9  : ECHO           5,000    2,000      3,000
10 : FOXTROT        7,500    1,000      6,500
11 : GOLF           4,000    4,000          0
12 : HOTEL          8,500    3,000      5,500
13 :
14 : comment :
15 : f15,10,10,10,/4
```

GUIDE TO PIPS III
SAMPLE DISKETTE

Page no. 29

```
1  : <DEMO1>                                          ( 0. 0. 0) N41    PAGE  29
2  : DISP CLR
3  : DISP [20,4] "***********************************************"
4  : DISP [20,5] "DEMO PROGRAM TO GRAPH DATA IN A TABLE AND THEN"
5  : DISP [20,6] "COMBINE THE DATA AND  GRAPHS  IN ONE TABLE AND"
6  : DISP [20,7] "PRINT OUT A HARD COPY"
7  : DISP [20,8] "***********************************************"
8  :
9  : INPUT [10,15] "ENTER NUMBER OF PAGE CONTAINING DATA TO BE GRAPHED     " X1
10 : INPUT [10,17] "ENTER NUMBER OF PAGE TO BE USED AS SCRATCH PAD        " X2
11 :
12 : G;%X1;                              GET THE PAGE INPUT AS "X1" INTO THE MASTER BUFFER
13 : GR;1;2;Y;*;;20000;;N;               MAKE BAR GRAPH OF COLUMN 2 ON THE TABLE
14 : GOSUB SDEMO1;                       TRANSFER EXECUTION TO SUBROUTINE
15 : CA;D;%X1;3;-1;-2;2;N;               COMBINE BAR PORTION OF GRAPH WITH FIRST 2 COLUMNS OF ORIGINAL TABLE
16 : P;%X2;                              FILE PARTIALLY COMPLETED TABLE ON SCRATCH PAD PAGE
17 :
18 : G;%X1;                              GET THE PAGE INPUT AS "X1" INTO THE MASTER BUFFER
19 : GR;1;3;Y;*;;20000;;N;               MAKE BAR GRAPH OF COLUMN 3 ON THE TABLE
20 : GOSUB SDEMO1;                       TRANSFER EXECUTION TO SUBROUTINE
21 : CA;D;%X1;2;-3;2;N;                  COMBINE THE BAR PORTION OF THE GRAPH WITH COLUMN 3 OF THE ORIGINAL TABLE
22 : CA;D;%X2;5;-1;-2;-3;1;2;N;          COMBINE THESE TWO COLUMNS WITH THE TABLE ON SCRATCH PAD PAGE
23 : P;%X2;                              FILE PARTIALLY COMPLETED TABLE ON SCRATCH PAD PAGE
24 :
25 : G;%X1;                              GET THE PAGE INPUT AS "X1" INTO THE MASTER BUFFER
26 : GR;1;4;Y;*;;20000;;N;               MAKE BAR GRAPH OF COLUMN 3 ON THE TABLE
27 : GOSUB SDEMO1;                       TRANSFER EXECUTION TO SUBROUTINE
28 : CA;D;%X1;2;-4;2;N;                  COMBINE THE BAR PORTION OF THE GRAPH WITH COLUMN 4 OF THE ORIGINAL TABLE
29 : CA;D;%X2;7;-1;-2;-3;-4;-5;1;2;N;    COMBINE THESE TWO COLUMNS WITH TABLE ON SCRATCH PAD PAGE
30 :
31 : SET;PRT=/16;                        SET PRINTER TO CONDENSED PRINT MODE
32 :
33 : L;B;                                PRINT CONTENTS OF MASTER BUFFER
34 :
35 : STOP;                               END PROGRAM EXECUTION
36 : <SDEMO1>
37 : SB;                                 PUT THE GRAPH INTO THE MASTER BUFFER
38 : NF;N;11,34,/4;                      MAKE THE GRAPH INTO A FORMATTED PAGE
39 : DL;2;2;Y;IR;2;ESC;                  ERASE UNWANTED LINE FROM THE TABLE
40 : RETURN;                             EXECUTION RETURNS TO MAIN PROGRAM
41 : *                                   "*" INDICATES THAT THERE ARE NO MORE PROGRAMS ON THE PAGE
```

30

```
1  : <DEMO2>                                          ( 0. 0. 0) N14    PAGE  30
2  : DISP CLR
3  : DISP [20,4] "***********************************************"
4  : DISP [20,5] "DEMO PROGRAM TO GRAPH DATA IN A TABLE AND THEN"
5  : DISP [20,6] "COMBINE THE DATA AND  GRAPHS  IN ONE TABLE AND"
6  : DISP [20,7] "PRINT OUT A HARD COPY"
7  : DISP [20,8] "***********************************************"
8  : INPUT [10,15] "ENTER NUMBER OF PAGE CONTAINING DATA TO BE GRAPHED     " X1
9  : INPUT [10,17] "ENTER NUMBER OF PAGE TO BE USED AS SCRATCH PAD        " X2
10 : G;%X1;GR;1;2;Y;*;;20000;;N;GOSUB SDEMO2;CA;D;%X1;3;-1;-2;2;N;P;%X2;G;%X1;GR;1;3;Y;*;;20000;;N;GOSUB SDEMO2;CA;D;%X1;2;-3;2;N;CA;D;%X2;5;-1;-2;-3;1;2;N
11 : P;%X2;G;%X1;GR;1;4;Y;*;;20000;;N;GOSUB SDEMO2;CA;D;%X1;2;-4;2;N;CA;D;%X2;7;-1;-2;-3;-4;-5;1;2;N;SET;PRT=/16;L;B;STOP;
12 : <SDEMO2>
13 : SB;NF;N;11,34,/4;DL;2;2;Y;IR;2;ESC;RETURN;
14 : *
```